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IMPROVED SHORT-HORN BULL FAIRFAX,

BRED AND OWNED BY E. P. PRENTICE, ESQ. MOUNT-HOPE, NEAR ALBANY,

Which obtained the First Prize as the best two year old Bull at the Fair of the New-York State Agricultural Society at Albany, September, 1842—and the First Prize as the best Bull of any age, at the Fair of the American Institute, October, 1842.

TRANSACTIONS

OF THE

NEW-YORK

STATE AGRICULTURAL SOCIETY,

TOGETHER WITH AN

ABSTRACT OF THE PROCEEDINGS

OF THE

COUNTY AGRICULTURAL SOCIETIES,

FOR THE YEAR 1842.

VOL. II.

ALBANY:
E. MACK, PRINTER TO THE SENATE.

1843.

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STATE OF NEW-YORK.

No. 63.

IN SENATE, MARCH 9, 1843.

ANNUAL REPORT

OF THE EXECUTIVE COMMITTEE OF THE NEW-YORK STATE AGRICULTURAL SOCIETY, FOR 1842.

To the Hon. SAMUEL YOUNG,
Secretary of State:

The Executive Committee of the New-York State Agricultural Society, in compliance with article 4th of the Act for the Encouragement of Agriculture, passed on the 5th day of May, 1841,

RESPECTFULLY REPORT:

That the Committee, in accordance with a by-law of the Society, have held monthly meetings, in almost every instance attended by a quorum of the Committee, at which such measures have been adopted as seemed to them calculated to promote the important objects indicated in the act referred to, and to secure which, the Society has been made the recipient of the bounty of the Legislature.

At a meeting of the Committee, held in the city of Albany on the 16th of February, it was determined to hold the annual fair of the Society in the city of Albany, on the 27th, 28th and 29th days of September, and a premium list was adopted, appropriating to this object nearly $2,000.

In appropriating to this purpose so large a sum, in addition to the unavoidably large expenses of the Society, the Committee relied up-

on the public spirit and liberality of the friends of agriculture, and they have not been disappointed in the result.

The Committee do not deem it necessary to encumber their report with the voluminous details of the premium list.

The following analysis of this appropriation, will, it is hoped, satisfactorily indicate that the Society has not overlooked any of the more important branches of agricultural labor, and that it has judiciously and fairly distributed the funds which it derives from the public treasury, as well as the contributions of individual liberality:

The premiums upon farm stock, including horses, cattle, sheep, and swine, amounted to,	$827
Farm implements,	173
Agricultural products, including butter, cheese, maple sugar, field crops, &c.	315
Silk and domestic manufactures,	143
Flowers, fruits, vegetables and horticultural implements,	118
Premiums for essays—to artists for portraits of animals—plans of farm houses, &c. about	200

The Committee held out inducements which drew to the exhibition many articles not enumerated in the premium list, connected with agricultural pursuits, well worthy the notice of the Society, and upon which a considerable fund was expended in discretionary premiums. A large number of diplomas, and several gold and silver medals, were likewise distributed.

There is no branch of this subject to which the Committee look with greater confidence for results, beneficial, extensive and enduring, than to the essays upon agricultural subjects, solicited rather than remunerated, by the premiums of the Society. In designating the subjects of these essays, the Committee directed their first attention to those points in which the numerous publications, scientific and agricultural, now before the public, seemed mainly deficient. It is not a little surprising that the first pursuit of man, that occupation to which he was destined by one of the earliest, and an irrevocable law of his Maker, should have been the last to receive the illuminations of science. Of the many causes which have conduced to this result, it is not necessary that we should here speak, but we may be allowed to express our gratification that the light which has so long shed its lustre over those pursuits of industry, falsely deemed more elevated in their tendencies, has at length reached us, and rendered intelligible the complicated and wonderful laws by which a Beneficent Creator has ordained that he who sows the seed shall reap the harvest.

Remarkable as are the results of the scientific investigation of the products of nature, combined with agricultural art, explaining those facts, which, from the earliest days of man's existence, have been witnessed but not understood, we are compelled to admit that they have as yet produced but a slight impression upon the amount of the agricultural productions of our country.

These discoveries and inventions of science have been revealed in the language of science, a language unhappily not taught in our schools. Until the educational systems of our country shall have accomplished those higher ends which are anticipated from a more enlightened and vigorous administration of the liberal endowments of the Legislature, it is of the first importance that the results of scientific investigation should be laid before the practical farmer in the most intelligible and popular form possible.

The Society, in accordance with these views, offered their highest premium for a popular treatise upon agricultural chemistry. It is to be regretted that the committee are not as yet prepared to offer any work upon this particular subject.

The premiums for essays upon manures and upon farm management have, however, drawn out two treatises, herewith transmitted, of remarkable excellence. The essay upon manures is particularly worthy of commendation. It brings to the subject all the lights of modern science, with the not less valuable aids of practical knowledge.

While men of science, in the pursuit of an honorable fame, are extending the domain of human knowledge, it is to be hoped the Society will persevere in the humbler, but not less important duty of rendering these discoveries intelligible, and commending them to the attention of the great mass of practical cultivators.

At a meeting of the Committee on the 8th of June, a sub-committee, consisting of Messrs. E. P. Prentice, L. Tucker, Alex. Walsh, George Vail and J. McD. McIntyre, was designated to make the preparatory arrangements for the Annual Fair of the Society, which took place at the time appointed, under the most favorable circumstances of weather and location. Although this was but the second effort of the kind attempted by this Society, it is believed that it would have done no discredit to the maturer efforts of any society in any country.

About six hundred domestic animals, of the most improved breeds and of the highest excellence, were entered for the premiums of the Society.

Of the very large collection of farm implements, some idea may be formed from the fact, that more than forty plows of different construction were offered for the inspection of the committee charged with that subject.

It is gratifying to know that those countries from which we have borrowed the models of our most valuable farm implements, are receiving back from our ingenious mechanics, many greatly improved and new instruments for facilitating and expediting agricultural labor.

In domestic manufactures, works of mechanical art, fruits, and vegetables, the exhibition was rich and varied.

The floral exhibition presented the most flattering testimony that our countrymen are not neglecting those elegant pursuits, which, without any immediate practical results, are yet invaluable in their influence upon the refinement and purity of society, and which are especially worthy the attention of those devoted to rural occupations.

The delicate duty of awarding the premiums of the Society, was delegated to several committees, composed of individuals selected for the ability and success with which they have cultivated agricultural or kindred pursuits.

Their reports, which have furnished the Society with a mass of valuable facts and suggestions, will be embraced in the papers accompanying this report.

Although the Society is pursuing its objects with limited means, this Committee have endeavored to husband its resources so as to commence the establishment of a permanent fund, the income of which will ultimately render the Society independent of the bounty of the Legislature, as well as of the contributions of individuals, other than the moderate charge (one dollar,) for membership.

In pursuance of this object, the Committee are happy in being able to state that at their last meeting the funds of the Society justified them in directing the treasurer to invest fifteen hundred dollars in the stocks of this State.

The following is an abstract of the report of the treasurer:

Amount on hand January, 1842,.....	$969 36
Received from State treasury,.....	700 00
Receipts during the year, from members, subscriptions, &c.	1,649 92
Carried forward, ...	$3,319 28

Brought forward,.....	$3,319 28
Disbursements,.....	1,475 36
Bal. on hand, Jan. 18, 1843,.....	$1,843 92

From this balance there is to be paid the premiums awarded at the annual meeting of the Society in January, as well as several awarded at the September fair, which had not been called for when the treasurer's report was made, amounting to about $400.

At the annual meeting of the Society, held in the city of Albany, on the 18th Jan. the following officers of the Society for the year 1843, were elected in the manner prescribed by the statute:

President.

JAS. S. WADSWORTH, *Livingston.*

Vice-Presidents.

1st Senate District, JAMES LENOX, *New-York.*
2d " ROBERT DENISTON, *Orange.*
3d " ANTHONY VAN BERGEN, *Greene.*
4th " E. C. DELAVAN, *Saratoga.*
5th " JONATHAN D. LEDYARD, *Madison.*
6th " Z. A. LELAND, *Steuben.*
7th " J. M. SHERWOOD, *Cayuga.*
8th " L. B. LANGWORTHY, *Monroe.*

H. S. RANDALL, *Cortland Village, Corresponding Secretary.*
LUTHER TUCKER, *Albany, Recording Secretary.*
E. P. PRENTICE, *Albany, Treasurer.*

Additional members of the Executive Committee.—C. N. BEMENT, *Albany;* H. D. GROVE, *Buskirk's Bridge;* ALEX. WALSH, *Lansingburgh;* J. McD. McINTYRE, *Albany,* and THOMAS HILLHOUSE, *Watervliet.*

After a full hearing of the views of members of the Society, from different sections of the State, it was determined, by a resolution of the Society, to hold the next annual fair in the city of Rochester, at such time as this Committee shall hereafter designate.

The extending and increasing interest taken by the community at large in these annual exhibitions of the triumphs of agricultural labor and skill, was forcibly indicated by the anxiety of members from different parts of the State, to secure for the districts which they represented, the advantages and gratifications derived from this source.

The city of Rochester, the mart of a very extensive district of country of unsurpassed fertility, occupied by a population whose industry and agricultural skill are sufficiently attested by the rapidity with which, within less than the period of the ordinary life of man, they have brought that portion of the State from an untenanted wilderness, to be remarkable for the amount, the variety, and the value of its agricultural exports, presented claims upon the attention of the Society, which could not well be overlooked.

Several topics of interest to the agriculturist were discussed at the annual meeting of the Society referred to, and measures adopted to secure the permanence and continued prosperity of the association, which it is not deemed necessary to communicate on this occasion.

In conclusion, the Committee cannot refrain from expressing their decided conviction that the Society, in diffusing valuable information, in exciting an honorable and praiseworthy spirit of emulation, in giving form and expression to the wants and interests of agricultural labor, in bringing into contact individuals whose isolated pursuits have hitherto deprived them of all the advantages of association and comparison of ideas, is performing those highly useful functions, and accomplishing those important ends, which the Legislature had in view in extending the public bounty to this and other agricultural associations.

Respectfully submitted,

JAS. S. WADSWORTH, *President.*

LUTHER TUCKER, *Secretary.*

ADDRESS

OF THE

HON. WILLIAM H. SEWARD,

(GOVERNOR OF THE STATE.)

At the Annual Fair of the New-York State Agricultural Society, September 29, 1842.

FELLOW CITIZENS:—

The display of animal and vegetable productions, the expositions of culture, and the trial of implements of tillage, under the patronage of the New-York State Agricultural Society, are completed; and it only remains to confer the civic prizes which have been so honorably won. Shall scenes so animating, though so peaceful, so instructive, though so simple, pass without comment?

If our country has a citizen imbued with the philanthrophy, and learned in the philosophy of agriculture, eminent in political wisdom and transcendant in eloquence, here are his forum and his theme. Such a citizen you have expected to hear. Let my temerity in assuming the place he has left vacant, and others have declined, find an apology in the gratitude which the abundant kindness of my fellow citizens has inspired.*

In that time-worn Tower, which tells many a deed of treachery and of tyranny, the British Government exhibits the armor and arms of Kings, Nobles, Knights, Soldiers and Seamen who have borne the standard of St. George around the circumference of the globe. France, with pride more refined, displays in the galleries of the Louvre, the chefs d'ouvre of her artists, with what she yet retains of the productions of the pencil and the chisel, of which Napoleon despoiled the nations of Europe. These monuments excite admiration, but they leave generous and grateful sympathies unmoved, while the benevolent mind recognizes in the axe, the plow and the loom, agents of civilization and humanity, and exalts them above all the weapons

* The Hon. Daniel Webster was expected to deliver the Address.

that ambition and rapine have forged, and even above all the embellishments of social life, that arts merely ornamental have ever produced. Nor need we overvalue our agricultural inventions, or bestow exaggerated praise upon their authors. Admitting the inferiority of our schools to the Universities of Europe, and the deficiency of our artisans in learning and experience, we may yet maintain that all scientific acquirements here, and all inventions, pass immediately to the general use, and contribute directly to the general welfare. Such are now our means of diffusing and preserving knowledge, that no really useful invention can either be lost or fail to be employed in every region of our country. Let this festival,

> ——————"Pastorally sweet
> And rurally magnificent,"

be preserved, and the increasing emulation of our yeomanry and mechanics maintained, and the effect will be seen, not only in the improvement of agriculture, but in the amelioration of the character of the people. Thirty years before the revolutionary war, at a celebration in Massachusetts, the Matrons and Maidens of Boston appeared on the Mall, each industriously plying the busy spinning wheel. Need it then excite surprise that our sister State now excels with the shuttle, and extorts wealth from the floods, the ice and the rocks! The character of a people may be studied in their amusements. The warlike Greeks fixed their epochs on the recurrence of the olympic games. The husbandmen of Switzerland at stated periods celebrate the introduction of the vine. Well may we then, continue ovations in honor of agriculture, which, while they give expression to national rejoicing, promote the welfare of our country, and the good of mankind.

FARMERS OF NEW-YORK—You do wisely in collecting from every district and every region, the various species of plants, and adopting such as find our soil and climate most congenial; in introducing new branches of culture and mechanic industry; in choosing out of domestic and foreign stock, the animals which propagate most rapidly, with the least expense of subsistence, and yield the largest returns for the husbandman's care; in stimulating invention to the discovery of new principles of tillage, machines and implements, for increasing the fertility of the soil and the productiveness of human labor. But these efforts alone, well conceived and beneficial as they are, do not fulfill the responsibilities of the American farmer.

Similar exertions, though less effective, have been made by the tillers of the earth in every age, however benighted, and in every country, however subjected. The God of nature has given us a territory stretching through fifty degrees of longitude, with almost the breadth of the temperate zone, embosoming numerous lakes, and traversed by capacious rivers. Every variety of soil north of the tropics, and every mineral resource, with mountain, forest and plain, are abundantly supplied. We stand, in relation to this wide territory, not unlike the progenitor of our race in regard to the earth over which he received dominion from the Almighty. He has permitted us to learn wisdom from the rugged experience of almost sixty centuries, and to establish a system of government, new and peculiar, which, while it effectually secures personal rights and domestic tranquillity, does not favor war, and is not adapted to aggression, which chastens avarice and represses ambition, which favors equality, subdues individual power, and stimulates, strengthens and combines the power of the masses—a system resting on the consent, and kept in action only by the agency of the governed. To these advantages is added a social organization which rejects, in every form, the principles of involuntary or reluctant labor and gradation among the members of the State, and by offering equal rewards, calls forth the equal industry and enterprise of every citizen. These peculiarites of our political and social condition, indicate an era in civilization, and inspire a generous confidence that it may be our privilege to open for our race the way to a brighter and better destiny than has yet been attained.

Hitherto, civilized men, enslaved or oppressed, have doubted whether advancement from the savage state of existence was a blessing, and have struggled for liberty as if mere liberty was the end of human achievement. But we have learned that civil liberty is only one of the conditions of human happiness, and is desirable chiefly because it favors that social advancement which is the ever fulfilling destiny of mankind. In every stage of that advancement hitherto, agricultural improvement has been last, though it should always be first. By agriculture, nations exist; it supports and clothes mankind; it furnishes the resources for protection and defence, and the means even of moral improvement and intellectual cultivation. Portions of a community, cities, and even states, may exist by exercising the mechanic arts, or by going down to the sea in ships, but there must nevertheless be, somewhere, some larger agricultural com-

munity to furnish the productions and fabrics indispensable even in such forms of society. The necessary minerals, iron, lead, copper, and others, are beneficial only because they are employed in aid of agriculture, or in preparing its productions for our use; and even the metals which by consent of mankind are called precious, have no value except as representatives of the fruits of industry. Other interests may rise and fall, and other masses may combine, dissolve and re-combine, and the agricultural mass be scarcely affected, but the whole body politic sympathise when this interest is depressed and this class suffers.

> "Princes and lords may flourish or may fade,
> A breath can make them, as a breath has made:
> But a bold peasantry, their country's pride,—
> When once destroyed, can never be supplied."

It is an obvious responsibility of the American people to restore the natural and proper order of social improvement, by renovating agriculture—for this is the tendency of our institutions. It is a maxim in other countries that society necessarily consists of two classes—the ruling few and the governed many. The latter are designated under the most liberal forms of government as "the laboring poor;" in the polished countries of the South as "peasantry," and in the ruder north as "serfs." Here we know not as a class, serfs, peasantry or poor; and the laboring many constitute society. Whether designedly or not, they who apply to our condition, analogies derived from monarchical or aristocratic States, would mislead us, and those deceive themselves who expect that our government will operate otherwise than for the security and benefit of the masses. The legislators of our country are its citizens; and since the predominating mass of citizens consist of tillers of the soil, the American farmer is the American statesman. The government, therefore, necessarily tends to sustain and promote agriculture.

In Europe, the cost of land fit for tillage is twice or three times greater than here; the price of labor here is more than double that in Europe. Our land is therefore cultivated imperfectly, and its productions are seldom equal to one-half its capacity. Thus one of our great advantages is counterbalanced by a deficiency of physical force. Notwithstanding our population augments with unprecedented rapidity, by domestic increase and immigration—yet such is the demand for labor and service in commercial towns, and in the improvement of roads and rivers, and so attractive are our new settlements

in the west, that the deficiency of labor continues the same, and its value, under ordinary circumstances, constantly increases. Immigration, therefore, is an auxiliary to agriculture. The condition of society in Europe favors emigration. The nations are reposing after long and exhausting wars. The masses increase in disproportion to their territory and subsistence; and although a democratic spirit is abroad, slowly renovating their institutions, there is still a restless desire to participate in our social advantages and enjoy our perfect liberty. But with the sturdy, enterprising and virtuous immigrants, there will also arrive on our shores, the infirm, the indolent and the depraved, while a change of home and country is always liable to be attended by accident and misfortune. These circumstances increase the charges for public charity and justice in our populous cities, and hence their inhabitants often regard immigration as itself a calamity.

But, aside from all questions of humanity—if we compare this incidental misfortune with the addition to the national wealth and strength derived from the one hundred thousand emigrants who annually disperse themselves over the country, and take into consideration the increase of our physical strength by their descendants, we find every principle of political economy sanctioning the policy of our ancestors, which freely opened our ports and offered an asylum to the exiles of every land. Nor need I urge before such an enlightened assembly, that prejudices against emigrants, and apprehensions of danger from their association, are as unwise as they are ungenerous. The experience of mankind has proved that mutual intercourse and the most intimate relations between the various branches of the human family are indispensable to the progress of civilization and humanity.

The agricultural interest, though the last to suffer, is always slowest in recovering from any national calamity. Associations in other departments deranged, may be renewed. Capital destroyed may be supplied, and masses overborne may recover. But agriculture, once embarrassed, is with difficulty restored. War, however justifiable or necessary, or however it may stimulate production for a season, is always a national evil, and in its least desolating form is destructive of agricultural prosperity. To cultivate the disposition and the arts of peace, and to guard against domestic disturbance and civil discord,

are important therefore, not merely to the improvement, but to the prosperity of agriculture.

Agriculture can never flourish where its rewards are precarious, or inferior in value to those obtained in other departments of industry. Perpetual care is necessary to diminish the burthens to which it may be subjected. Hence the necessity of an economical conduct of public affairs—of improving those inland communications which serve for the conveyance of agricultural productions to places of exchange and consumption, and of such commercial regulations as secure advantageous markets, either at home or abroad. But these considerations are so familiar that they need not be dwelt upon, notwithstanding their acknowledged importance.

The preservation of equality among the people in regard to constitutional and legal rights, and perpetual adherence to the policy which by laws regulating descents, devises and trusts, prevents the undue accumulation of estates, are indispensable to agricultural prosperity. It is this policy, co-operating with the natural advantages of our position, which has made the agricultural class here a community of freeholders, in contrast with the systems of other countries, under which lands are cultivated by tenants, the rewards of whose labor pass to the benefit of landlords.

Not only was the "primal curse" of labor universal, but acquiescence in it was wisely made a condition of health, happiness, wisdom and virtue. This condition, however, implies that equal rewards are allowed to mankind, while equal labor is exacted from them. Whatever institution, then, on any pretext, relieves any portion of a community of the necessity of labor, or withholds its incèntives or excludes them from equal competition for its rewards, not only is unequal and unjust, but by diminishing the whole amount of social labor, increases the burthens of those on whom the subsistence of society depends. We are all accustomed to recognize this important truth in the operation of domestic servitude. But every form of unequal legislation, every custom and every prejudice which causes any mass or any portion of a mass to abate their efforts to secure independence and wealth, operates in the same manner, although to a less extent.

While the patrons of agriculture will keep steadily in view these principles, their most strenuous efforts must be exerted for the diffusion of knowledge. To knowledge we are indebted for whatever of

ease or security we enjoy; and the safety and happiness of every civilized community, not overborne by foreign oppression, are exactly in proportion to its intellectual cultivation. So also, as a general proposition, individuals prosper and exert influence according to the standard of their attainments. This truth applies also to masses in a community. The agricultural class here, as well as in every other country, notwithstanding their numbers, enjoy comparatively inadequate compensation and abated influence, because they have a lower standard of education than other classes. There is not, as is often supposed, a certain amount of knowledge which it is profitable for the farmer to possess, and dangerous to exceed. Learned men sometimes fail in this honorable pursuit, but not in consequence of their acquirements; and the number of such is vastly less than those who fail through ignorance. It is a fact, which, however mortifying, cannot be too freely confessed, or too often published, that an inferior education is held sufficient for those who are destined to the occupation of agriculture. The standard established for them is seldom as high as the full course of instruction given in our common schools, and consists in an ability to read, but scarcely with pleasure or advantage, to write without facility or accuracy, and to perform simple processes in the art of numbers. Higher attainments than these are allowed to all other classes. The mechanic and the artisan are at least instructed in the nature and properties of the substances which they use, and in the principles and combinations of the mechanical powers they employ, while each profession jealously guards against the intrusion of any candidate, who however skilful in its particular mysteries, has not completed a course of scientific or classical learning.

There is no just reason for this discrimination. The domestic, social and civil responsibilities of the farmer, are precisely the same with those of every other citizen, while the political power of his class is irresistible. The preparation of the soil to receive a germ, the culture of the plant, its protection against accidents, and the gathering of its fruit—each of these, apparently simple operations, involves principles of science more recondite than do the studies of the learned professions. Every other department of industry has willingly received aid from science. In mechanism, the laws of power and motion are so well understood, that achievements to which human energy was once deemed inadequate, are easy and familiar. The

hand is now almost unnecessary in the fabrication of cloths. Animal power is beginning to be dispensed with in locomotion on the land, and the intercourse between nations separated by seas, heretofore so difficult and uncertain, is rendered speedy and regular by the use of steam. But agriculture is regarded as involving no laws of nature, requiring no aids, and capable of no improvement. Physical power is considered the only suitable agent, and that power is most wastefully expended. Admitting the beneficent effects of the cotton gin, the improved plow, the cultivator, the threshing machine, and other implements which have been instrumental in effecting a slow advancement in agriculture, it must still be confessed that while other arts are more rapidly improving, this, of human arts, the first and last, whose cultivation leads to plenty, and is cheered by health and contentment, remains comparatively unassisted and stationary.

But independently of the aid which mechanical science owes to agriculture, if the principles of economical geology, of agricultural chemistry, and of animal physiology, which have been laid open by Lyell, by Priestly, by Davy, Liebig, Johnson, and Dana, and our own Buel, were universally known and applied, the productiveness of the soil would be incalculably increased. Regarding the education of the agricultural class, then, only in the light of economy, its importance cannot be over estimated. But this is its least interesting aspect. Education is necessary to elevate the agricultural masses to their just eminence, and to secure their enlightened action in the conduct of government, and of the various interests of social life. Praises of agriculture, and acknowledgments of the purity, patriotism and wisdom, of those who pursue that most peaceful calling, are the never failing themes of all who court their suffrages. Yet it is a sad truth, that the interests of agriculture, and of those who subsist by it, are often considered subordinate, and sometimes injuriously neglected. The avenues to preferment are open to all, but they are seldom traveled by the farmer. Questions of peace and war, of revenue, of commerce, of currency, of manufactures, of physical improvement, of free and foreign labor, of education, are too often discussed and decided without just consideration of their bearing upon the interests of agriculture. The reason is obvious. The art of agriculture is learned by imitation and habit. Those who are destined to that pursuit, are not early instructed in the principles of the government, or its relations to other States, in their own legal rights, their civil du-

ties, the pathology of the human constitution, the nature of the substances with which agriculture is concerned, or their properties, or the laws regulating their development, or even in the simple art of tracing geometrical lines, and calculating their contents, not to speak of the range of physical and exact sciences, history and ethics, classical learning, the philosophy of language and the art of eloquence.

These attainments, though open to all, are reached exclusively by other classes, and the Farmer in mature years, is sent to the Press for political instruction, and to the Clergy he must yield implicit confidence, and must depend upon the Lawyer for the defence of his simple rights, upon the Physician for information whether he is diseased, upon the Professor for explanations of the properties of the soil he cultivates, and upon the Civil Engineer for even the measurement of his acres. When such dependance upon these various classes is established, can it be a matter of surprise, that precedence is conceded to them in the various departments of society? Let me not be misunderstood. I deprecate not the influence of the learned classes, and I would promote by every proper means their higher improvement—nor would I excite jealousy against them, or in the least diminish the respect or confidence they enjoy—but I desire to see the agricultural class equally elevated, and for that purpose I would stimulate them to corresponding attainments. This is the true theory of republican institutions. When it is carried into practical and complete operation, and not until then, shall we enjoy a regular, safe, equal, and enlightened administration of civil government.

Your task, then, is nothing less than social revolution—a revolution, however, which, like all your pursuits, will be peaceful and beneficial. You aim no blows at the government of the country, or the power, the prosperity, or the influence of any class of its citizens. On the contrary, you will render them all the aid and all the support they need. Nor will you justly encounter the opposition of any class, for all are equally interested with yourselves in the great work you have undertaken, and upon which depend the stability and permanence of our institutions, and the hopes of mankind.

The agency required in this great work is already prepared, and awaits your adoption. The primary schools, the voluntary religious establishments, the academic seminaries, and the universities which you require, are already founded, and liberally endowed. In our school district libraries, an auxiliary is furnished, whose efficacy is scarcely

surpassed by the invention of Cadmus, of Faust, or of Fulton. With pride and pleasure I add, that this agent was called into action by a farmer of New-York. These libraries, which are placed at almost every angle of our thoroughfares and by-ways, and contain treasures richer than those the world lamented in the destruction of Alexandria, may be made the vehicles of not merely the literature which adorns, but of the science which elevates, and of that moral and political wisdom which gives beneficent direction to the human mind.

Little remains for you but to guide the rising generation to the improvement of these facilities, nor will that task be difficult. Science, though repulsive to the ignorant, is attractive to the initiated, and its attraction increases just in proportion as truths are presented which are adapted to the comprehension and satisfying to the curiosity of the young mind. In the dark ages, the system of instruction was so contrived, as to present to faculties undeveloped, the deductions of science without their explanation, and recondite truths without their illustration. Whatever was simple and easy of apprehension, was thought unworthy to be known, and the philosophy which explains the formation of the earth, and its perfect adaptation to the subsistence and happiness of our race, was not then conceived. Something of this strange error still remains, but a change has commenced, and we may soon hope to see a system of education which will lead the mind by an easy and natural process, through the truths of external nature, to the mysteries of mind and the study of the Supreme Author.

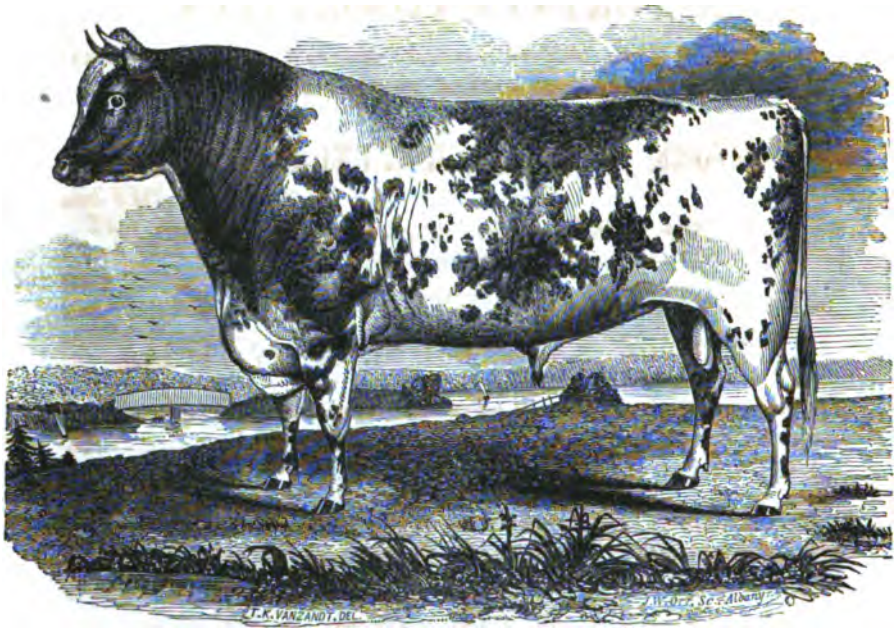
Let it be your effort to hasten this change, and thus divest knowledge of its repulsive features, to excite the emulation and stimulate the patriotism of the young, by making known to them the attainments of which they are capable, the advantages they may acquire, and the responsibilities they are to assume. The desire for knowledge, once excited, will increase, and will find ways to continue its pursuit. Then the youth destined to agricultural occupations, instead of being employed in perpetual labor, will be allowed to acquire the knowledge which renders those occupations cheerful, dignified, and successful; and parents, instead of hoarding their gains to be divided among their offspring, to relieve them from the necessity of enterprise, will devote their wealth freely in bestowing that better patrimony which cannot be lost. Need I point out to such an

audience, how this work shall be commenced? Let it be the task of individual effort to awaken the attention of our fellow-citizens to the importance of keeping the common schools open during a greater portion of every year, of a more careful regard to the qualifications of teachers, of the introduction of the natural sciences into the schools, of allowing the children of the State, at whatever cost, to persevere in the course of education commenced; and above all, of removing every impediment and every prejudice which keeps the future citizen without the pale of the public schools. The State has been munificent to the rising generation. She has not only founded a system of universal instruction, but she has at great cost explored the animal, vegetable, and mineral kingdoms, and exposed their mysteries. The benefits of these discoveries, though diffusive, will be experienced in an eminent degree by agriculture.

You have already wisely employed the agency of association, but the principle is susceptible of more varied and comprehensive application. Be not content with organizing a State Society and county associations, by which you excite the efforts of the few who least need improvement; but organize an agricultural society in every school district, and thus secure the co-operation of all our citizens. Such associations, while they would promote agricultural fellowship, and vigorously second efforts immediately tending to the improvement of the art, would apply themselves diligently in exciting an interest in the important subjects which have been discussed, and in circulating treatises upon proper studies, and watching over the interests of education and of agriculture in the schools, in the primary action of society, and in the Legislative councils.

But, gentlemen, in whatever direction your efforts may be made, you will encounter difficulties and discouragements. You will be opposed by that contented spirit which regards every improvement as innovation, and which perpetually, though falsely, complains that mankind degenerate, without making an effort to check the progress of error. You will be regarded as visionary, by those who consider skill in acquiring, and success in retaining wealth, as the perfection of human wisdom; but you will remember that such as these seldom bestow their countenance upon the benefactors of mankind, nor does fortune always distinguish them by her favors. Robert Morris, the financier of the revolution, died a bankrupt. Christopher Coles, our most efficient advocate of inland navigation in the

last century, was interred by private charity, in the Stranger's burying ground. The essays of Jesse Hawley, which demonstrated the feasibility and importancc of a continuous canal from Lake Erie to the Hudson river, were sent forth from a debtor's prison; and De Witt Clinton, whose name is written upon the capital of every column of our social edifice, was indebted to private hospitality for a resting place. It is the same generous and patriotic spirit which animated these philanthropists, and sustained them in their struggles with the prejudices of the age in which they lived, that I desire to invoke in favor of agriculture. This spirit, wisely directed, cannot fail, for it has been irresistible in every department it has hitherto entered. But let us all remember that the only true way to begin reform, is to find the source of error; and that if we cultivate MAN, the improvement of the animal and vegetable kingdoms will surely follow.



IMPROVED SHORT-HORN BULL DUKE OF WELLINGTON,

OWNED BY GEORGE VAIL, ESQ. TROY, N. Y.

Duke of Wellington is a roan Bull, bred by Thomas Bates, Esq. of Kirkleavington, Yorkshire, England, calved October 24, 1839; got by Short Tail, (2621,) Dam Oxford, having obtained the first prize for the best Short-Horn Cow, open to all England, in July, 1839, given by the Royal Agricultural Society, by Duke of Cleaveland, (1937;) Grand Dam Matchem Cow by Matchem, (2281;) Great Grand Dam by Young Wynyard, (2859,) sometimes called Young Wellington, (p. 494, Coate's Herd Book.)

REPORTS OF COMMITTEES,

AT THE ANNUAL FAIR OF THE

NEW-YORK STATE AGRICULTURAL SOCIETY,

Held at Albany, Sept. 27, 28, and 29, 1842.

REPORT ON CLASSES I. II. III. AND IV.—BULLS.

[*Committee:*—Messrs. ADAM FERGUSON of Watertown, U. C.; PAOLI LATHROP of South Hadley, Mass.; HENRY WHITNEY of New-Haven, Ct., and J. O. CHOULES, of New-York.]

The committee appointed to judge on Classes I, II, III, and IV, beg leave to report that they have unanimously awarded the Premiums as follows:

Class I.—1st, to Mr. Prentice's Nero.
2d, to Mr. Johnston's Royal William.
3d, to Mr. Bement's Astoria.
4th, to D. D. Campbell's Durham bull.

Class II.—1st, to Mr. Prentice's Fairfax.*
2d, to Mr. Clark's Major.
3d, to Mr. Vail's Duke of Wellington.†
4th, to Mr. Sampson's No. 5.

Class III.—1st, to Mr. Van Rensselaer's Rockingham.
2d, to Mr. Delavan's Leopard.
3d, to Mr. Van Rensselaer's White Prince.
4th, to Mr. Vail's Meteor.

Class IV.—1st, to Mr. Prentice's Cato.
2d, to Mr. Sweet's.
3d, to Mr. Vail's.
4th, to Mr. Sherwood's Damon.

The committee cannot close their report, without remarking upon

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* A portrait of "FAIRFAX," forms the frontispiece of this volume. "Fairfax," a pure white, bred and owned by E. P. Prentice, Esq. Mount Hope, near Albany, was calved May 10, 1840. He was sired in England by Sir Thomas Fairfax—d. Splendor, by Symmetry, 2722—g. d. by Young Bedford, 1701—g. g. d. by Isaac, 1129—g. g. g. d. by Whiteworth, 1584—g. g. g. g. d. by White Comet, [sire of £1000.] 1562—g. g. g. g. g. d. by a son of Charge's Kit, 2179.

† For the portrait and pedigree of "Duke of Wellington," see opposite page.

the very creditable display of stock brought before them, and which reflects much credit upon the farmers of the State.

REPORT ON CLASSES V. VI. VII. AND VIII.

[*Committee*:—Messrs. DAVID C. COLLINS, Hartford, Ct.; I. S. HITCHCOCK, W. K. TOWNSEND, East Haven, Ct.; CH'S BROOM and R. L. ALLEN.]

The committee of the "N. Y. State Agricultural Society," on cows, heifers, and heifer calves, comprising classes V, VI, VII, and VIII, respectfully report:

That they have attended to the duties of their appointment, in which they experienced the embarrassment usual on such occasions from finding the animals *numerous*, while the *premiums* were *few*,—but adopting the rule that a *majority in number* of the committee, should of course, in all cases, be decisive, they arrived at the following results:

In Class V, the Society's 1st premium was given to Mr. Sherwood's Durham Short Horn cow, Stella.
——— the 2d, to Mr. Prentice's cow, Daisy.
——— the 3d, to Major Dill's cow, Gazelle.
——— the diploma, to Mr. Sherwood's cow, Pansy.

In Class VI, the 1st premium to Major Dill's heifer, Hebe, a very superior animal.
——— the 2d, to Mr. Prentice's heifer, Sally.
——— the 3d, to Mr. Prentice's heifer, Caroline.

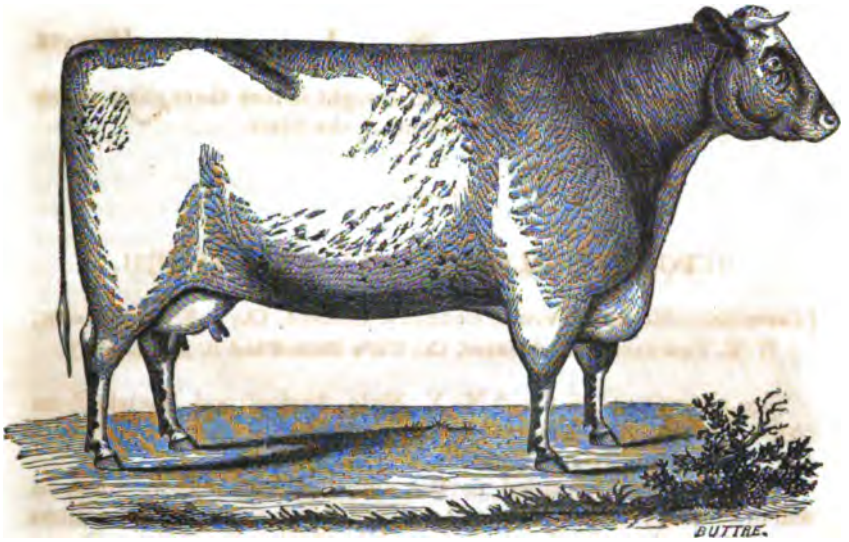
In Class VII, the 1st premium to Mr. Sherwood's heifer, Norna.
——— the 2d, to Mr. Prentice's heifer, Charlotte.

Your committee saw no other animal in this class, which they deemed on the whole, worthy of being honored by the Society's Diploma, which was accordingly withheld.

In Class VIII, the first premium was awarded to Mr. Prentice's heifer calf, Nell.
——— the 2d, to Mr. Prentice's white heifer calf, Duchess, (by Fairfax.)
——— the diploma, to Mr. George Vail's heifer calf, got by his imported bull Wellington.

Your committee found it no easy matter to decide among so many *fat* calves as were shown in class VIII, their respective *merits* and *faults* being alike covered and hidden by *flesh*, so much so that they were really better adapted for the inspection of a committee of *butchers* than of *breeders*.

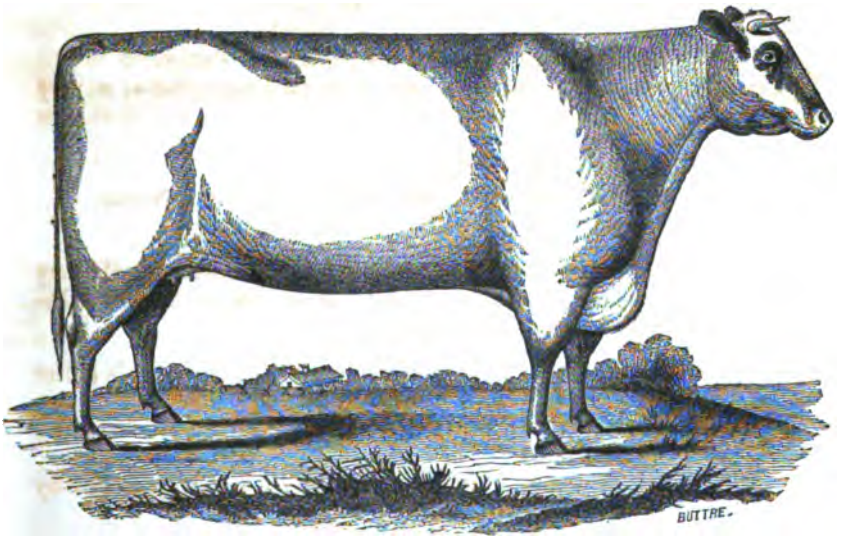
The practice, now too common, of *fattening* breeding animals for exhibition, is not only wholly without utility, but is so bad and injurious in every point of view, that it ought to be discountenanced.



IMPROVED SHORT-HORN COW GAZELLE,

OWNED BY MAJ. J. B. DILL, AUBURN.

To Gazelle, was awarded the third premium for the best Cow of any breed, at the Fair of the N. Y. State Agricultural Society, held at Albany, Sept. 1842. She was calved in 1838—sired by Charles, 1816—Dam, Crocus, by Romulus, 2563—G. D. Prize, by Marlbro, 1189—G. G. D. Tulip, by Regent, 546—G. G. G. D. (see Herd Book)—G. G. G. G. D. Primrose, by North Star, 459.



IMPROVED SHORT-HORN HEIFER HEBE,

OWNED BY MAJ. J. B. DILL, AUBURN,

Which received the first prize at the N. Y. State Fair, September, 1842. Hebe, a pure white, calved April 1, 1840, was sired by American Comet—Dam, Gazelle, by Charles, 1816—G. D. Crocus, by Romulus, 2563—G. G. D. Prize, by Marlbro, 1189—G. G. G. D. Tulip, by Regent, 546—G. G. G. G. D. Primrose, by North Star, 459. [See Herd Book.]

It will not fail to be noticed that *all* the foregoing premiums are given to animals of the valuable breed known as "Durham Short Horns," against which kind there was on this occasion no other breed shown in competition, except *Herefords*, of which there was a beautiful and very creditable exhibition, consisting of a portion of the herd of Messrs. Corning & Sotham, some individuals of which, this committee would highly commend, especially as being good specimens of that important quality, *good handling*, always essential to excellence.

Your committee, (of which a portion, if not a majority, is composed of what might be called "Short Horn men," either by *preference* or *interest* as Short Horn breeders,) from motives of *delicacy*, not to say *generosity*, did not deem themselves called on *to decide between these two rival breeds*, and *against* the *Herefords*, which would have been for the most part, and *in effect*, their decision, if made on this occasion.

In England, the *home of both breeds*, where *beef* is the *first* and almost the governing consideration, the *Herefords* as a breed, it is well known, have long maintained a sharp and *often successful* competition with the Short Horns, for *feeding* purposes, especially as a *grazing* stock; while it is claimed, and now generally conceded by well informed dispassionate persons in England, that the *well bred* Short Horns have the merit of *earlier maturity*, and are also entitled to the preference for *stall feeding*, and more especially and decidedly so for *dairy* purposes, in which the *Short Horns* and *their crosses* are believed *to excel all other breeds*, and that the *pure bred males* of this breed are *capable of improving all other breeds of cattle;* certainly a most important consideration, and especially so in this and all the northern portion of the United States.

It is understood that the *Herefords* have not yet been sufficiently *tried* in this country as *milkers*, in the absence of which, there seems to prevail at present an *unfavorable impression* of them as *dairy* stock, which impression it is to be hoped may soon be done away, if, as their friends claim, the Herefords are really a superior milking breed. Some of their *crosses* with native stock, now existing in Massachusetts, descended from an importation of Herefords made many years since, by Admiral Coffin, are understood to have proved excellent milkers.

It is besides claimed for the Herefords, that they will make *good working cattle*, being strong and active, which is not doubted. It is also conceded that the *quality* of the Hereford *beef* is *excellent*. Therefore, taking no more than a fair view of their case, the Herefords must, in all probability, prove a highly valuable stock in those portions of this country where the *grazing* of cattle for *beef* is a primary object.

Under these circumstances, your committee would ask in behalf of the newly imported Herefords, a *fair chance*,—and that they be allowed, after coming from on ship board, to *get well upon their feet*, before they "enter the lists" against the now well established Short Horns. If the Herefords are cherished and encouraged for a time, it

is to be hoped that the now favorite Durhams, may, by-and-by, in future competition, find in them "foeman worthy of their steel."

In view of the foregoing considerations, your committee would respectfully beg leave to recommend that extra premiums be awarded to the Herefords, as follows:

To Mr. Sotham's cow Matchless, fifteen dollars.

To his cow Martha, ten dollars.

And a diploma to his heifer Maria.

If the Herefords were distributed in more hands, so as to give room for competition among themselves, your committee would suggest the expediency of hereafter offering premiums for them in a class distinct from other breeds. Also for *North Devons*, a highly useful and most valuable breed, especially on light soils, and in hilly districts of country.

Your committee cannot in justice close their report, without remarking that the want of information as to how the animals *had been fed*, also as to the *milking* qualities of the cows, and occasionally as to the *pedigrees*, was much felt by the committee, who, in the absence of this needed information, were in many instances left to grope their way in the dark to a *decision*, of course, in some cases, by no means satisfactory, even to themselves. Nor did we find persons in attendance, to *lead out* the animals for a more full and careful examination, especially as to their *style of carriage or movement*, which it is needless to remark, is, as well as form and *handling*, an essential element of any intelligent opinion, or critical decision on their merits.

REPORT ON CLASSES IX. X. AND XI.

[*Committee.*—Messrs. JAMES NEILSON, G. V. SACKETT, and JOHN JOHNSTON.]

The committee appointed to examine grade cattle, in classes IX, X, and XI, beg leave to report:—

That the competition on this occasion, has been extremely limited, both as to the number of cattle, and the variety of the crosses. No specimen of a cross between the Native stock and the Devon, or Hereford, or Ayrshire, has been presented; and the crosses of the Durham are much less numerous than might have been expected. This is much to be regretted. Nothing but experiments on all the breeds now imported, will enable us to ascertain their relative value in crossing, and it is obvious that the result of these experiments must be made known in the most public manner, in order to be widely useful.

The committee regard public exhibitions of this kind, eminently calculated to diffuse such information, and they conceive that in neglecting them, the breeder neglects as well his own, as the interest of the public.

They have selected No. 7, (Mr. Risley's cow,) of class IX, No.

2, (Mr. Fowler's 2 year old heifer,) of class X, and No. 1, (Mr. Bement's Cream Pot,) of class XI, as entitled each to the first premium of their respective classes. They have also assigned to No. 1, (Mr. Buel's cow,) in class IX, and No. 3, (Mr. Schuyler's heifer,) in class X, the second premium in their respective classes.

REPORT ON CLASSES XII. XIII. XIV. AND XV.

[*Committee:*—Messrs. SAMUEL JAQUES, WATSON NEWBOLD, HENRY BURRELL, TYLER FOUNTAIN and J. W. REQUA.]

The committee on classes XII, XIII, XIV, and XV, report,—

On class XII, cows, Native breed—Only one was presented for competition, being a red cow, called Rose, 9 years old, belonging to E. Chesebro, of Guilderland, Albany co.; to which we award the second premium of $8.

Class XIII, Native heifers, between 2 and 3 years. But two were presented, neither of which, in our opinion, is entitled to a premium.

Class XIV, Native heifers between 1 and 2 years.—But one was presented for competition, being a red, with white face, 16 months old, and had a calf four weeks since, belonging to L. V. V. Schuyler, of Watervliet, Albany co.; to which we award the second premium of $5.

Class XV, Dairy cows of any breed.—But one was presented for competition, agreeably to the terms and restrictions set forth in the prize list, and which is the native cow mentioned in class XII, and which made 37 lbs. butter in 30 successive days, and to which we award, under this class, a diploma.

The committee add, that it is very much to be regretted that the owners of native stock have not presented them for exhibition and competition, and we are compelled to believe that the great and splendid display of blooded cattle, has been the cause of their not being produced; and we trust that at the next annual fair and exhibition, this defect will be amply supplied, not only from the vicinity, but from more remote parts, where we are well assured they do exist of very superior quality, and in large numbers; and without any disparagement to the splendid blooded cattle, will be found, if equal care shall be bestowed upon their selection and breeding, to meritoriously and pecuniarily reward their owners in an eminent degree.

REPORT ON WORKING OXEN AND STEERS.

[*Committee:*—ROBERT COLT, of Pittsfield, Mass., Chairman.]

The committee on working oxen, and three year old steers, consisting of Messrs. Colt of Pittsfield, Mass., Wadsworth of Dur-

ham, Conn., Cross of Shaftsbury, Vt., Fuller of Skaneateles, and Haswell of Hoosick 4 Corners, New-York, have attended to the duty assigned them, and respectfully report:—

That the number of working oxen upon the ground, were nine yoke, well matched and unusually well trained; there were but few among them that did not carry marked proofs that they came from a land of peace and plenty, and were strangers to Pharaoh's lean kine. We cannot but express our gratification at their grand display; it was with difficulty the committee could decide between the merits of the competitors, which is an evidence of an improvement in this department; and we think by judicious crossing with stocks adapted to the rich grazings of New-York, that it will not only be said that its blooded stock stand among the first in our country, but also, with its present means of crossing, that the working oxen may stand first.

Your committee have carefully examined all the animals belonging to their province, and have endeavored to do strict and impartial justice to all the applicants, not knowing to whom they belonged until the awards were made, and give the premiums as follows:

For the best yoke of working oxen, No. 1, four years old of the Devon and native cross, to W. Phelps of Chatham, $20.

For the 2d best yoke, No. 6, five years old, of the Devon and Durham cross, to Benj. Aikin of Greenbush, $12.

For the 3d best yoke, No. 9, four years old, of the Devon and Durham cross, to William N. Sill of Bethlehem, $8.

For the 4th best yoke, No. 5, six years old, of the Devon and Native cross, to Henry Adams of Bethlehem, $5.

For the 5th best yoke, No. 3, six years old, of the Native breed, to Jacob L. Ten Eyck of Bethlehem, the Society's diploma.

The committee regret to say, that there were no three year old steers entered for examination. All of which is respectfully submitted.

PREMIUMS TO BREEDERS.

To E. P. Prentice, breeder of best bull in class I, $10.
To Francis Rotch, breeder of best cow in class V, $10.
To Henry S. Randall, breeder of best heifer in class VI, $10.

REPORT ON FAT CATTLE AND FAT SHEEP.

[*Committee:*—Messrs. P. H. FINK, CHARLES BROOM, THOS. KIRKPATRICK, and JAS. H. CURTIS.]

The committee on fat cattle and sheep, report:—

That the first premium is awarded to P. N. Rust of Syracuse, Onondaga co., for the fattest ox. The second premium is awarded

to Mr. C. Godfrey of Geneva, for the second best ox; and the third premium is likewise awarded to Mr. Godfrey, for the third best ox; and the diploma to Mr. T. E. Jones of Utica, Oneida co., for the fourth best ox.

The committee have awarded the first premium to Francis Rotch of Butternuts, Otsego co., for the fattest wether sheep. The second to Mr. John McD. McIntyre of Albany, for the second best wether; and also the diploma for the third best.

The following certificates show the manner and the quantity of food, with which they have been fed, and the cost:

The "Syracusian," owned by P. N. Rust of Syracuse, Onondaga co., is 8 years old. He has been fed 19 months last past, on corn meal, from 12 to 16 quarts per day, and in the winter season about half a bushel ruta bagas or potatoes a day. During summer months, has been fed about four quarts oil meal per day, in addition to his corn meal. Corn worth 37½ cts. per bushel; say hay per week, 25 cts.; roots 50 cents.

C. Godfrey of Geneva, fed his cattle as follows: On 12 to 14 quarts of corn and pea meal per day, during the year; the meal worth 50 cents per bushel. In summer, on grass. In winter, on hay.

T. E. Jones' ox. The ox has been fed fifteen months; the first five months, half bushel potatoes, and 6 quarts shorts per day—10 months, half bushel potatoes, and 6 quarts meal per day. Hay per week, 25 cts.; potatoes, 20 cts. per bushel; shorts, 20 cts. do. meal, 50 cts. do.

Mr. Rotch received his South Down wether from England, in October, 1841. Through that winter, the sheep was fed as well as possible, with hay, potatoes, oats, and oil cake, having suffered from the voyage. On the 1st of May, his feed was gradually reduced, so that by the 10th of May, he was turned out to grass only, and has had nothing but salt from that time till he was put into the wagon, and traveled 80 miles to Albany.

Mr. McIntyre's two wethers were grass fed through the past summer, and through the previous winter fed only on clover hay and turneps; no grain whatever having been fed to them.

REPORT ON HORSES.

[*Committee*:—Messrs. EDWARD HARRIS, J. M. SHERWOOD, W. T. PORTER, and L. C. BALL.]

The committee on horses, beg leave to report that they have awarded the following premiums:

For Stallions over 4 years old.

1st premium of $20, to Mr. Long's chestnut horse Eclipse.
2d " 12, to Mr. Long's sorrel horse Sir Henry.
3d " 8, to Mr. M'Kinney's chestnut horse Sir Henry.
And a diploma to Mr. Long's dapple bay horse Magnum, as 4th best.

For Stallions three years old.

The committee regret that but two were shown, and that, under the rule laid down by the Society, they did not feel authorized to award a premium to either.

They have likewise to regret that in the first class of brood mares and colts, nothing was shown, which, in their opinion, merited the premiums offered by the Society.

In the second class of 3 year old brood mares, there was but one mare offered; there being no competition, no premium could be awarded.

For Matched Horses.

1st premium of $15, to Mr. Brinckerhoff's pair of bay horses.
2d " 10, to Mr. Johnson's pair of black horses.
3d " 5, to Mr. Mesick's pair of bay horses.

The committee are of opinion that the style of horse contemplated by the Society, as the "horse of all work," has not been exactly represented by any of the horses offered for competition. They have endeavored, to the best of their judgment, to award the premiums to such horses as approached the nearest to the required model.

Mr. Ball says—I agree with the committee in the foregoing report, except as to breeding mares and colts. I think the mare Clio, and the colt by her side, entered by E. Long of Cambridge, entitled to the first premium offered by the Society.

REPORT ON FOREIGN STOCK.

[*Committee*:—Messrs. HENRY S. RANDALL, FRANCIS ROTCH, and GEORGE J. PUMPELLY.]

The committee on Foreign Stock, would respectfully report:—

They have had the pleasure of examining a grey four year old Norman stallion, presented by Mr. Edward Harris of Moorestown, New Jersey, and imported by that gentleman from France. This horse belongs to the breed used for the diligence or stage coach in France, and although not decidedly fleet, they are remarkable for their bottom and endurance. It may, indeed, be well doubted whether any other variety of horses would drag those cumbrous vehicles so great distances in a given time. Like their descendants, the Canadian horses, they are easily kept, will feed on the coarsest materials, and are remarkable for their freedom from disease, and their iron hardihood and endurance under all circumstances.

Your committee consider Mr. Harris' horse one of unusual substance and symmetry, for the breed. The shoulder lies well back, the back is short, the whole conformation betraying immense strength. He has a great length and substance of fore-arm, and the limb below the knee is clean and short, for the character of the breed. He also displayed free and spirited action. Your committee cannot but believe that in its pure state, this variety of horses would prove one of the most valuable for heavy draft; and there is little doubt that crossed with the light mares of our country, would produce a peculiarly hardy and active race of horses, fit for the road or the plow.

The Society were much obliged to Henry Whitney, Esq. of New-Haven, Conn. for the opportunity afforded them of seeing specimens of his fine Short Horn stock, his valuable imported bull "Rocket," by "Norfolk," out of "Carnation," bred by Mr. Hargrave in England, and his red roan cow "Strawberry," an animal that attracted much attention for her substance and general good appearance. More it would not become us to say, as she is engaged in a sweepstakes. His beautiful heifer "Cornelia," we understand to be also in a sweepstakes, and therefore feel it necessary to abstain from comment.

Your committee further had the gratification of viewing a fine specimen of the Duke of Leed's stock, in the imported bull "His Grace," brought on the ground by Paschal Morris, Esq. of Allerton, Chester county, Pa. This animal was by "Anthony," out of "Vinea," she by Mr. Whittaker's Frederick, &c. "His Grace" is an animal of great substance and much excellence. He was selected, as we are informed, by Mr. Whittaker in England, and sent over to this country in 1838.

Your committee trust that no foreign stock exhibited on this occasion, was overlooked by them—if so, the immense concourse of men and animals on the ground, and the confusion necessarily attending such a scene, must serve as their apology.

REPORT ON LONG WOOLED SHEEP.

[*Committee*:—Messrs. E. Lawrence, E. Kirby, Chester Moses and F. M. Rotch.]

The committee upon Long Wooled Sheep, class No. 1, have carefully examined the several specimens of this useful animal, which have been submitted to their inspection. Where the claims of individuals in some instances are so nearly balanced, it is difficult to do exact justice. The committee, exercising their best judgment, and having regard to the purpose which mainly recommends this class to the attention of farmers near our large towns, namely, the value of the carcass for the table, have endeavored to award the premiums with a fair discrimination, which shall command the approbation of the parties immediately interested.

The committee award the premium for the best buck to Thomas Dunn of Albany.

The premium for the second best buck, to J. McD. McIntyre of Albany.

The premium for the third best buck, to E. C. Delavan of Ballston.

The premium for the fourth best buck, to L. D. Clift of Putnam county.

The committee award the premium for the best pen of three ewes, to Messrs. Corning & Sotham of Albany.

The premium for the second best pen of three ewes, to L. D. Clift of Putnam county.

The premium for the third best pen of three ewes, to Thomas Dunn of Albany.

The premium for the fourth best pen of three ewes, to J. McD. McIntyre of Albany.

The number and excellence of the animals submitted to the inspection of the committee, cause regret at the limited number of premiums at their discretion. They would particularly notice a pen of three ewes, belonging to H. Morrison of Orange county, and a pen of twenty-three beautiful lambs, belonging to Messrs. Corning & Sotham, which commanded their admiration as choice specimens of this class of sheep, which is now attracting public attention, and for the introduction of which from abroad, the country is indebted to the liberal enterprise of several gentlemen, distinguished for their zeal in promoting the interests of agriculture.

REPORT ON MIDDLE WOOLED SHEEP.

[*Committee*:—Messrs. E. MARKS, S. W. JEWETT and D. S. CURTIS.]

The committee on Middle Wooled Sheep, would respectfully report:—

That the sheep offered for their inspection, were, with one exception, all South Downs, and in these the competition was very close; so much so that it was with considerable difficulty that the committee decided upon the comparative merits of the sheep belonging to Messrs. Rotch and McIntyre. But after mature deliberation, the committee have awarded the first prize on middle wooled bucks, to J. McD. McIntyre of Albany; the second to F. M. Rotch of Butternutts; the third, and diploma, to S. Waite of Montgomery.

The committee have also awarded the first prize on middle wooled ewes, to F. M. Rotch of Otsego; the second to J. McD. McIntyre of Albany; the third to S. Waite of Montgomery; the diploma to C. N. Bement of Albany.

REPORT ON FINE WOOLED SHEEP.

[*Committee*:—Messrs. J. P. BEEKMAN, E. C. DELAVAN and S. D. COLT.]

The committee appointed to examine the Fine Wooled Sheep exhibited for premiums, beg leave to report:—

That the number of animals of that description, that were presented for exhibition, was small—nothing in number to what we were entitled to expect, considering that Albany is the center around which it is thought there are large and valuable flocks of that useful animal. In the State of New-York, there are probably as numerous, and as fine wooled sheep, as there are in any State in the Union. Some patriotic and spirited gentlemen early entered into that branch of agriculture, and it has been pursued from that period until this time, by a large number of our best farmers, with the best spirit and more or less success. It is a branch of agriculture that will keep pace with the increasing wealth of our people, and the capacity of our manufacturers to make a good article from the raw material. From the ingenuity of the American people, we have every reason to believe that in the manufacture of fine cloth, the time will soon come, that for cheapness, strength, and finish, their cloth will compete with that of any people in Europe.

We report that Charles W. Hull of New Lebanon, Columbia county, is entitled to $10, the first premium, for the exhibition of the best Saxony buck.

That Henry D. Grove of Rensselaer county, is entitled to $8, the second premium, for the exhibition of the second best Saxony buck.

That John Mott of Mechanicsville, Saratoga county, is entitled to $5, the third premium, for the exhibition of a fine wooled merino buck.

The committee would wish to draw public attention to this class of fine wooled sheep, which have recently been neglected for the finer but not more profitable Saxony, from the fact that the Merino shear much the heaviest fleece, which in quality and price is but little inferior to their competitor, the Saxony, but in amount of money realized from the same number of fleeces, exceeds them. The fleece from the buck to which the last premium has been awarded, and which was exhibited with the animal, for instance, weighed 9¾ lbs. and was of fair quality as to fineness.

The committee award $10 to Henry D. Grove of Rensselaer, for the best pen of ewes, and to the same person, $8 for the second best pen; and to Charles W. Hull of Lebanon, Columbia county, a diploma for the fourth best pen.

REPORT ON SWINE.

[*Committee*:—Messrs. WILLIAM LINCOLN of Worcester, Chairman; SAMUEL CHEEVER, A. MARKS and W. B. LUDLOW.]

The committee on Swine awarded premiums as follows:

The first premium of $10, for the best boar, to Gen. Wm. Salisbury of Leeds—the second of $8, to Mr. John Lossing of Albany—the third of $5, to Mr. Samuel Shaw of Berlin. These three were all of the Berkshire breed. The committee recommend diplomas to be given to Mr. J. B. Nott of Guilderland, for his Cheshire boar—to Mr. C. N. Bement for his improved China boar; and to Mr. B. Knower of Albany, and to Mr. S. S. Crocker of Kinderhook for their Berkshire boars.

The first premium of $10, for the best breeding sow, to Mr. T. C. Abrahams of Watervliet—the second of $8, to Mr. Benjamin Gibson of Albany—the third of $5, to Mr. Gerritt Middleton of Albany.

As a testimonial of the excellence of the swine exhibited in this department, the committee recommend that diplomas should be presented to Messrs. C. N. Bement, Jesse Buel, John Lossing, William Landon, and R. Fox, all of Albany; Mr. A. Van Bergen of Coxsackie; and to Mr. Harmon Bussing of Bethlehem.

The committee also recommend the Society to present a diploma for success in good breeding, to Mr. Gerrit Donalson of Bethlehem, Mr. S. R. Schuyler and Mr. A. Schuyler of Watervliet, Judge Samuel Cheever and Mr. Gibson of Albany, for their fine Berkshire pigs; to Mr. Thomas Pemberton, for a pig of the Grass breed; to Mr. Henry Sloan of Guilderland, for specimens of the Cheshire and Grass cross; and to Mr. Thomas Beighton and C. N. Bement, for examples of the mingled blood of the China and Mackay stocks.

REPORT ON THRESHING MACHINES, &c.

[*Committee*:—Messrs. C. N. BEMENT, L. B. LANGWORTHY, W. A. S. NORTH, and ORVILLE HUNGERFORD.]

The committee appointed to examine Threshing Machines, Fanning Mills, Straw Cutters, and Horse Rakes, beg leave to report:—

That they have attended to the arduous duties assigned them, and had it ever been questioned, the exhibition at this meeting would satisfy us that a good portion of the spirit of Yankee ingenuity and enterprise had been manifested.

The attention of the committee was first directed to the Threshing Machines, and they much regret there were so few competitors, there being only four machines entered for competition.

Among the great improvements of the day, which have been made in implements of husbandry, the Threshing Machine may be named as an instance. Our ancestors used the flail or horses to beat out

their grain, which, to say the least, was a slow and tedious operation; but thanks to modern invention, a machine has been invented, moved by horse power, that threshes out as much, and more effectually, grain in one day, than one man could in thirty days with the flail. We now have a machine that will not only thresh, but deliver the grain ready for the mill or market, in the open field, without any loss in the operation.

On a careful examination of the different machines offered, and on trial, the committee did not hesitate to award the Society's first premium of $20, to John A. Pitts of Albany, for his Threshing Machine and Separator.

This is considered by the committee, as well as by those who have had it in use, a very perfect machine; and the growers of wheat are much indebted to Mr. Pitts, for his perseverance in constructing and perfecting a machine that will thresh and clean, with less labor, as much grain in a day, with the same power, as any that has yet been introduced.

The second premium of $10, we award to Mr. Stafford of Syracuse.

This machine exhibited great skill and finished workmanship, and from its appearance and operation, well calculated for doing a great business. The horse power, we consider well worthy attention, being constructed on correct principles, and of the best materials. The thresher also exhibited good workmanship, and finished in good style, and its performance was very satisfactory.

On small farms, where a one or two horse power is desirable, the committee cannot resist the opportunity of recommending the two horse power presented by Leonard Bostwick of New-York, as a valuable portable and well constructed implement, and at the low price which it is offered, comes within reach of the more numerous and humble farmer; we therefore award to Mr. Bostwick a diploma.

The Endless Chain Power, presented by Mr. Kells, of Claverack, was much admired for its workmanship, and presented some improvements on Davis' machine, but there appeared too great a disproportion between the power and the speed of the thresher, to insure perfect work. Where a power on this principle is wanted, we do not hesitate to recommend it as well worthy of attention; and had we funds at our disposal, would award Mr. Kells a premium.

Agriculture, hitherto, compared with manufactures and the mechanic arts, has derived until recently, little or no advantage from labor-saving machinery. The farmer is literally compelled to earn his bread "by the sweat of his brow," and whatever invention may contribute to abridge his toil and enable him, at a less expense, to extend his productions, must be a welcome auxiliary; by multiplying the means of human subsistence and comfort, will prove beneficial to the community, and encourage the hard working laborious farmer with the hope of keeping in sight, in his own art, the "art of all arts," though at an humble distance, of the other rapidly advancing inventions of the age.

The committee are constrained to mention with approbation, the

evident improvement made within the last year, in the construction of straw cutters; there being great competition in that article by fifteen different makers, several of which we are gratified to say, are from neighboring states, and afforded at prices ranging from five to fifty dollars. The committee found great difficulty in determining the superiority of several machines, and have been influenced in their decision, in several cases, by their preference to those machines which work on the side, rather than on the front, whereby one person can feed and operate them at the same time; which decision rejects several of great ingenuity of construction and perfection of operation. They have endeavored to prefer those which by their arrangement and construction, seem best adapted to the wants of the farming community; they have therefore awarded the first premium of eight dollars, to Wm. Hovey of Worcester, Mass.

The second premium of $5, to J. Standish of Fishkill, Dutchess county, N. Y., for his Guillotine Cutter.

To Messrs. Botts and Burfoot of Richmond, Va. a diploma.

This machine was exhibited under rather unfavorable circumstances, having been injured some by transportation. The advantages of this machine, as set forth by the proprietors, in their statement, are as follows: "The extreme simplicity of the knife, it being only 4½ inches wide, and *straight* on the edge, putting it in the power of any laborer to grind it and set it on again. The peculiar management by which the '*draw-cut*' is obtained with a straight blade; the rapidity and ease with which the straw is cut, discharging as much or more than any other machine which cuts as short as this; the great strength and durability of the whole machine; no liability to get out of order; the great excellence of the feeding apparatus, and the ease and rapidity with which it is driven, it being in the power of a boy to cut sufficient straw or hay for a large herd," &c.

The committee avail themselves of the present opportunity of recommending this machine to their southern friends, as being in their opinion, a very efficient machine, and well adapted to cutting hay, straw, and corn stalks, and earnestly hope the enterprising proprietors may receive that encouragement they so richly deserve.

There were two machines, one for hand, the other for horse power, presented from the well known and popular establishment of the Messrs. R. Sinclair Jr. & Co. of Baltimore. These machines are made in a workmanlike manner, combining some important improvements, great strength and power, and well adapted to large establishments; have been long in use and much approved of, and had we funds at our disposal, would most willingly award them a premium. For the horse power machine, they are entitled to a diploma.

The committee cannot pass over in silence, the new constructed and very ingenious machine, presented by Mr. Kells of Claverack. This machine embraced some new principles in the feeding apparatus, by which means the cut from 0 to 2 inches could be effected by merely raising a small bolt or slide. It also compressed the substance to be cut, nearly into a solid mass to receive the knife, by which means the straw was cut square and clean, and the greatest objection to it

was the slowness of its operation, having but one knife. With an additional knife, we think it would be a very efficient machine. It has been got up in good style, and reflects great credit on the inventor and maker, and is worthy of encouragement.

There were other very meritorious machines on the ground, but the committee have not had time to enumerate and describe them.

The Horse Rake is generally considered a great labor saving and important implement on most farms, and a most valuable invention, and its utility has exceeded the expectations of many; and that on tolerable smooth meadows, a man with one horse, will rake as much hay, and do it in as clean a manner, as eight men can do it in an equal time with the hand rake.

The committee regret that there was so little competition, there being only two implements of this description exhibited; and as there was no improvement manifested on the common horse rake, which has been long in use, the committee have thought proper to withhold the first premium; but in consideration of the superior workmanship, have awarded a premium of $3, to J. Downer of Castleton, Rensselaer county, N. Y.

To Lewis Stiman of Bethlehem, for the second best horse rake, a diploma.

The committee next examined the Fanning Mills, four of which were entered for competition. The one exhibited by Messrs. I. E. Grant & Co. of Schaghticoke, Rensselaer county, has been got up with great care and superior workmanship; and by a peculiar arrangement of the screens, it appeared to combine some improvement over the ordinary machines; the committee therefore have awarded them the first premium of $8.

The second premium of $5, to Phineas W. Dickie of Phelps, N. Y. for a mill of good construction and great power, combining some valuable improvements, and well adapted for a large grain growing country.

The committee recommend a diploma to John J. Bullock of Guilderland, Albany county, for a well finished and well constructed machine, well adapted to this section.

In concluding this report, the committee avail themselves of this opportunity to express their great satisfaction at the present exhibition, and earnestly hope at the next and all future meetings of this Society, the mechanics and manufacturers of the country, would bring forward the productions of their ingenuity and industry, which so much contributed to make the exhibition as interesting and satisfactory as those of any other country. At the meeting of the Royal Agricultural Society of England, in July last, between four and five hundred articles of agricultural implements and machinery were exhibited.

Those persons who have been accustomed to follow the same course of husbandry which their fathers and grandfathers adopted, have formed the opinion that little is to be learned upon this subject. It is difficult to make them comprehend that this art involves principles as extensive, and as hard to be understood, as any other art

which can occupy the attention of men. They never considered that agriculture is an important branch of natural philosophy; nor have they ever attempted to understand the nature of different soils; the regular and systematic rotation of crops; improved modes of tillage; the different breeds of cattle, sheep and swine; and the different kinds and qualities of fruit and fruit trees, vegetables, &c.; and yet they are subjects which the skilful farmer will deem necessary to understand, and he will devote his attention to them, as the study of an important and difficult science.

REPORT ON CULTIVATORS, HARROWS, &c.

[*Committee*:—Messrs. GEORGE W. PATTERSON, THOMAS HILLHOUSE, R. HARMON Jr., and J. B. DILL.]

Mr. Geo. W. Patterson, from the committee on Harrows, Cultivators, Drill Barrows, Yokes, and agricultural implements not specially under the examination of other committees, would respectfully report:—

That they have been exceedingly gratified with the ingenuity displayed in the manufacture of many of the articles exhibited for their inspection, some of which will be noticed in the proper place in this report.

Although Drill Barrows are in general use, and every practical farmer in the State, has, (or ought to have,) an ox Yoke, still neither of those articles were presented for our inspection.

The Harrows presented, were by no means perfect in their construction, but after mature deliberation, the committee came to the conclusion to award to Marcus Adams of Monroe county, for his wrought iron hinge Harrow, the first premium of $8.

To Christopher Proctor of Bethlehem, Albany county, for the second best Harrow, with sliding attachment and improved hinge, a premium of $5.

To Daniel Caley of Bethlehem, Albany county, for the third best Harrow, a diploma.

The committee after examining all the different Cultivators presented, came to the conclusion to award the first premium of $8, to J. H. Coons of Rensselaer county, for his wheat Cultivator. It will be found a very useful implement upon summer fallows, and for covering the wheat when sown.

To Ruggles, Nourse and Mason of Worcester, Mass. for Bement's Corn Cultivator, with graduating roller, and an improvement in the manner of extending or contracting the width of the implement, a premium of $5.

To Eliakim Elmer of Delta, Oneida county, a diploma, for the common Corn Cultivator, an article of beautiful workmanship.

The committee examined a very superior horse hoe, invented by Mr. J. C. Langdon of Troy, and take great pleasure in recommend-

ing it to the favorable consideration of the agricultural community, as an implement of much value in dressing corn, and earthing potatoes, and they award to the inventor a diploma.

There were a large number of Cast Iron Corn Crushers and Grinders, presented for the examination of the committee, all from the city of Baltimore. We were much pleased with all these machines, and more particularly with that part of them which is calculated for crushing the corn when taken in the ear, the grinding part being of less importance to the farmers in most parts of this State.

From the imperfect manner in which the committee were enabled to test these machines, it is very difficult to determine which would be most useful to our farmers. The committee would be gratified if they had the necessary means at command, to bestow it liberally to each of the gentlemen presenting machines, but as they are not thus fortunate, they have come to the conclusion to award to Mr. O. Hussey, for the best machine, taking into consideration the price, a premium of $8.

To Robert Sinclair, Jr. for the 2d best, a premium of $6.

To James Murray, for the 3d best machine, a premium of $4.

These machines are all calculated for horse power, and would take up but little room on the granary floors of our farmers, and would be of essential service in preparing feed for stock.

The committee would further remark, that Mr. Murray presented a Crusher, calculated for hand power, on the same principle of his larger ones, which would be valuable for farmers where they have but few cattle to feed, and are of limited pecuniary means, for which the committee award him a diploma.

A Grain Cutter, invented by Obed Hussey, was presented by T. R. Hussey of Auburn, Cayuga co. for the inspection of the committee. This machine is propelled by horse power, and is calculated to cut from twelve to eighteen acres of wheat in a day.

It is so constructed that the wheat may be cut at any distance from the ground that the farmer may desire. It has been used in many of our western counties, with perfect success, doing the work in standing grain, better than the ordinary way of harvesting. A great saving of labor, as well as grain, is effected in the use of this machine. Some members of the committee have seen Mr. Hussey's lately improved machines fully tested, and can speak from personal knowledge of their utility. They are calculated to operate well on level land, or where it is moderately uneven. The committee therefore award to T. R. Hussey, for his machine, a premium of $10.

Mr. Calvin Olds of Marlboro,' Vt. an ingenious mechanic of the "Mountain State," presented two Grain Sowers, one calculated for horse power, and the other to be drawn by hand. These machines are very creditable to the inventor, and furnish another evidence of "Yankee" ingenuity and enterprise. These machines have never been fully tested, but are intended for sowing all kinds of grain, grass seed, and plaster, and there is little doubt that the inventor, after the machine has been in use a short time, (if it is not now perfect,) will endeavor to make it so; and as there are no funds at the disposal of

the committee, for premiums on Grain Sowers, they award to Mr. Olds, a diploma, which he has richly earned.

There were several Corn Shellers on the ground, which were examined by the committee. They all appeared to be well constructed, but as the committee were unable to find the owners of any but one of the machines, they award to J. A. Whitford of Saratoga Springs, a diploma, for the best Corn Sheller and Cleaner examined by the committee.

A "Poultry Feeding Fountain," was presented by C. N. Bement, Esq. of Albany, a very ingenious and valuable article for feeding domestic fowls, inasmuch as there can be no waste of the grain, and the expense must be so trifling, that every farmer can afford to procure one. The committee therefore award to Mr. Bement, a diploma.

The committee also award to Henry Burden, Esq. of Troy, a diploma, for a beautiful specimen of Horse Shoes, made by machinery. This "labor saving machine," in the opinion of the committee, is a valuable improvement, and is destined to create an important change in the construction of that indispensable article.

The Screw Railway Hay and Cotton Press, offered by W. S. Jacks of Catskill, N. Y. It is a machine combining great power, convenience of operation, and constructed on true and philosophical principles, and is a great desideratum to the river counties, and all places not contiguous to market, and also to Cotton and Hop growers; and the committee think they do not exaggerate, when they say, it is in their opinion, the perfection of machinery for that purpose. The committee therefore award to Mr. Jacks, a premium of $5.

The Thermometer Churn, presented by Mr. Crowell of Lime Rock, Conn. seems to remedy one of the evils that have beset the dairy maid and housewife from time immemorial—explaining the cause of the difficulty of the *coming* of butter, and doing away with the necessity of using the heated horse shoe, or iron wedge, to expel witches. The committee award to Mr. Crowell, a diploma.

Self-Acting Cheese Press. An ingenious contrivance for making the weight of the cheese press itself, presented by Collins & Stone. This press is in use in many parts of Connecticut, with perfect success. The committee award to Messrs. Collins & Stone a diploma.

The trowel tempered, cast steel, goose necked Hoe, presented by H. Clark of Rensselaer county, a well made, neat, and durable article. The committee award to Mr. Clark, a diploma.

The Columbian Pump, made by Augustus Thayer of Chatham, Columbia co. New-York. This article is got up with great judgment as to correct principles, and combining some new and valuable principles not heretofore introduced. The committee award to him a diploma.

A superior grain Cradle was presented by Isaac T. Grant & Co. for which they are entitled to a diploma.

Mott's Agricultural Furnaces. Two of these very valuable furnaces were exhibited by Mr. J. L. Mott of New-York, to whom a di

ploma is awarded, Mr. Mott having received the highest premium for the same article, at the last State Fair.

And last, though not least in importance, among the various articles presented for our inspection, is a very useful, and beautifully constructed and improved Probang, invented by Mr. Daniel Caley of Bethlehem, Albany co., for relieving choked and hoven or bloated cattle. This implement is calculated for the removal of potatoes, apples, or other substances, with which any ox or cow may be choked, without any considerable pain to the animal, and with perfect safety. It will, without the least difficulty, extract from the stomach of a bloated animal, the saliva, gas, or wind, and thus effect an instant cure. It is an article so much needed by every grower of cattle, that the committee would be glad to see them in the possession of all our farmers, and would urgently recommend to the Executive Committee, to award to Mr. Caley, a discretionary premium or silver medal.

REPORT ON HORTICULTURAL IMPLEMENTS, &c.

[*Committee*:—Messrs. S. S. Fowler, E. Holbrook, and Ch's Downing.]

The committee to whom was assigned the examination of Horticultural implements and Garden Ornaments, respectfully report:—

That they have attended to this duty, but regret that there are so few competitors in this branch of agricultural implements. The committee have come to the unanimous conclusion, that Messrs. Benj. F. Smith & Co. of Syracuse, are entitled to the first premium for the best assortment of Horticultural Implements, $10. To Mr. Mott of New-York, for the best cast Iron Vase, $5.

REPORT ON SILK, COCOONS, &c.

[*Committee*:—Messrs. Henry S. Randall, O. Hungerford, and Peter Relyea, Jr.]

The Committee on Silk, would respectfully report:—That they have examined several lots of very superior Cocoons, and as between the three first samples, have found it nearly impossible to arrive at any accurate decision.

1st premium, $15, to Miss L. Steele of Troy.
2d premium, $10, to David Palmer of White Plains.
3d premium, $5, to A. P. Heartt of Troy.
4th premium, diploma, to David Palmer.

The specimens of Reeled Silk were not as numerous as could have been wished. Several, however, were of beautiful quality.

1st premium, $15, to Doct. David Palmer.
2d premium, $10, to A. P. Heartt.
3d premium, $5, to Doct. David Palmer.

4th premium, diploma, to Mrs. Shove.

The specimens of Manufactured Silk were numerous, and of a highly gratifying character.

1st premium, $15, to Henry Polhemus of Auburn, for a quantity of wove Silk; also about 40 lbs. of sewing Silk, and a quantity of twist.

2d premium, $10, to Prince & Vibber of Richfield.

3d premium, $5, to David Palmer.

4th premium, diploma, to Mrs. T. Backus of Rochester.

The committee would remark that the specimens to which the first premium was awarded, were presented by Mr. Polhemus, the agent of the State in the Auburn prison, and were the labor of convicts. They were presented by Mr. Polhemus, for the purpose of showing to the citizens of our State, the feasibility of rendering this a successful branch of industry in our penitentiaries, and demonstrating beyond the possibility of doubt, that silk can be manufactured in the United States, equalling the best class of imported articles. In sewing Silk, your committee made as accurate a comparison as the case would admit of, between that presented by the State agent, and the best specimens of M. Finessio, (red letter,) and other Italian manufacturers. The Auburn Silk was thought to excel all but that of M. Finessio, and could not be distinguished from that, only on the closest inspection. The wove Silk Handkerchiefs, &c. were also very superior.

Mr. Polhemus begged leave to return any premium which should be awarded to him, to the Society.

The first premium of $10, was awarded to —— Jones, for a highly ingenious Silk Reel of a new construction.

REPORT ON DOMESTIC MANUFACTURES.

[*Committee*:—Messrs. A. LINN, O. WISWALL, and AMOS BRIGGS.]

The Committee on Domestic Manufactures respectfully report:—

That having examined the various articles submitted, they award the following premiums, viz:

To A. J. Pine of Pittstown, Rens. co. for the best pair of Woolen Blankets, manufactured in his family, $5.

To J. J. Viele of Hoosick, Rens. co. for the best fifteen yards and upwards of Wool Carpet, $5.

To A. Koonz of Albany, for the best double Carpet Coverlid, $5.

To Asa Fitch, Jr. of Salem, Washington co. for twelve yards of Linen Diaper. The premium upon this article is $5, but inasmuch as there was no other competition for the premium, and the article presented was not, in the judgment of the committee, of a superior character, the committee award a premium of $3.

To E. Wilson of Oneida co. for the best Hearth Rug. This rug was manufactured by Mrs. Southworth of Avon, Livingston co. with

the needle, and is of woolen yarn. It displays much skill and taste, and is a very beautiful article, and well worthy the premium of $3.

To A. J. Pine of Pittstown, Rens. co. for the best pair of knit Woolen Stockings, $1.

REPORT ON BUTTER.

[*Committee*:—Messrs. B. P. Johnson, R. Denniston, E. Rhoades, Howell Gardner, and Jno. Dinn.]

The committee to whom was assigned the examination of Butter submitted for premium, at the fair of the New-York State Agricultural Society, most respectfully report:—

That in pursuance of their appointment, they have examined the various samples exhibited by eleven competitors, and it is to the committee, as it doubtless will be to the Society, a matter of great regret, that in a State famed as is ours for the products of the dairy, only this small number of competitors should have presented themselves with the products of the dairy.

From the superior quality of much of the butter exhibited, the committee have no reason to doubt that had our dairymen generally exhibited their butter, an exhibition in point of quantity as well as quality would have been seen, excelling anything of the kind ever before exhibited in this country.

Several of the samples presented were so nearly equal in quality as to render decision difficult, though the committee finally unanimously united in awarding the premiums to the owners of the samples hereafter noticed.

Before giving their decision, the committee are of the opinion that the manufacture of butter is of sufficient importance to justify some general remarks on the subject.

The dairy business in this State is extensive, employing a very large capital and yielding a handsome revenue to the farmers, and is constantly on the increase; and upon the perfection of the article depends whether it shall secure a market as extensive as may be demanded, and prices such as to remunerate the farmer, and add to the rapidly increasing wealth of our State.

Without dwelling at length on the subject, the committee believe that there are some things which are indispensable to the production of a very choice article, and without which, whatever else may exist, butter of the best quality cannot be made. We are more impressed with the importance of these considerations, from an examination of the statements accompanying the butter exhibited, which were furnished us after the decision was made.

We notice as absolutely necessary, neatness in every thing connected with the dairy. The quality of the butter, its purity as well as its flavor and character in market, depends upon this. The milk must be kept at proper temperature while the cream is separating, and the cream should be taken off and churned before its quality is

in any manner impaired. Salt of the very best quality should be used, and the milk must be entirely separated from the butter, and no more salt used than can be dissolved, and when this is accomplished suitable packages should be prepared, and the butter solidly put down, entirely excluding the air.

Much depends upon the manner of packing for market, and the committee regret that more attention was not paid to it with some of the samples exhibited. Firkins and tubs are most generally used, and either of them, with proper care and attention, will answer every purpose. Some of the samples exhibited were put up very neatly indeed, and attracted the attention of every spectator.

There can be no good reason assigned why all our butter should not be well manufactured; and no keeper of a dairy should permit an inferior article to leave his premises for the market. Much of the butter which now finds its way to market, from a neglect of the suggestions we have made, has a very poor sale, and brings an inferior price. This should not be so, and we appeal to every dairyman and to his wife and daughters, to remedy this defect without delay.

It is a matter of congratulation, that persons employed in purchasing butter for the markets the present season, have in some sections of the State made a discrimination in their purchases, which is waking up attention to this subject.

The committee would recommend that premiums be awarded as follows:—

1st Premium, to George Cooley, Blooming Grove, Orange co.
2d " Israel F. Goodwin, Westmoreland, Oneida co.
3d " Hamilton Morrison, Montgomery, Orange co.
4th " B. A. Hall, New-Lebanon, Columbia co.
5th Diploma, to John S. Bull, Orange co.

The committee also examined a sample of butter made from scalded milk in 1841, and to which a premium was awarded at the annual fair in February last. This sample was kept by Mr. Merrifield to test the preserving qualities of the butter. We regret that it is not in as good condition in that respect as could have been desired, and probably does not in all respects answer the expectation of the owner. We believe that butter can be so prepared as to remain sweet and good for a much longer time than this butter has been made, and when perfection shall have been more nearly attained, we shall expect at every fair, butter of age competing with that of more recent manufacture for premiums.

The statements of the successful competitors accompany our report.

Mr. Cooley's statement.—Made from 13 cows, from 16th to 24th September, and seven pounds of salt and a teaspoon full of salt petre, used in keg of 80 pounds.

Cows kept in usual way, and run in grass; had pure water daily, and salt twice a week.

Milk set in pans until cream rises and becomes thick; then churn all the milk immediately; dog churn used.

Method of freeing butter from the milk is to skim out the butter with a ladle, and work out the milk with a ladle with pure cold water, but using as little water as possible, as the water has a tendency to take away the good flavor or sweetness of the butter; and care must be taken not to work it too much, as it will become greasy. The best method of keeping butter in the summer, is in a cool place in white oak firkins, covered with a weak brine.

Mr. Goodwin's statement—Time of making.—Since the first of September; number of cows kept, 14.

Mode of keeping.—Mostly in stable in winter, and feed hay; and in the spring roots or some grain; in summer, grass.

Treatment of milk and cream.—Strain in tin pans, and set in a room that has a northern aspect and free circulation of air; set the cream in a cellar till ready to churn.

Mode of churning in summer.—In a barrel churn, in a cool room.

In winter.—Keep the milk and cream in a warm, instead of a cool room; churn in the same manner.

Freeing milk from butter.—By pressure.

Salt used.—The best quality of Onondaga ground salt; the quantity is tested by the taste of the dairy women.

A very delicate tincture of the best loaf sugar is used, but care should be taken not to use too much; no other substances used.

Best time for churning in summer.—In the morning, or when it is cool.

Best manner of keeping in summer.—Keep the butter in tubs, jars or firkins, in a cool cellar; I think jars are best.

Mr. Morrison's statement.—Made in September; 10 cows kept; milk kept in tin pans; churned by dog machine; freed from milk by ladle and water; fine rock salt; no other ingredient used; churned in the morning; preserved in firkins.

Mr. Hall's statement.—The undersigned offers for the New-York State Agricultural Society's premium, 87 pounds butter, made from seven cows in two weeks of the present month. The cows were kept on grass feed only; the milk set in tin pans for 48 hours; the cream then taken from the milk, and kept in stone jars three or four days; churned in a circular churn with revolving paddles; the butter freed from the milk by the use of a wooden ladle; the salt the best kind of blown or rock salt, and the quantity regulated altogether by the taste, as it requires more salt in warm weather, as more passes off with the milk; no other substance is used except a slight addition of refined lump sugar pulverized.

The best time for churning in hot weather is in the coolest part of the day; and the best mode of preserving it at any time of the year is in stone jars; pack it in solid, and exclude the air from it entirely.

Mr. Bull's statement.—The butter was made from the 6th to 20th Sept., from nine cows; the cows were kept on a part of the farm known by the name of the Clinton farm, Gov. Clinton's birth place; the quantity of salt used in said firkin of butter was 6½ lbs. of fine salt, called Ashton salt; no salt petre nor any other substance used.

REPORT ON CHEESE.

[*Committee*:—Messrs. H. BALDWIN, D. STANTON, P. N. RUST, L. BRONK, and H. HOLMES.]

The Committee on Cheese respectfully report:—

That the quantity and variety of cheese offered for premium was unusually small; none remarkably good.

The best specimen in the judgment of your committee, was that presented by Mr. Ezra Chesebro of Fleming, Cayuga co.—the second best, that of Mr. A. L. Fish of Litchfield, Herkimer co.—the third, that of Mr. Samuel Greene of Fairfield, Herkimer co.—the fourth, that of Mr. Isaac Haswell of Watervliet, Albany co.—the fifth, that of Mr. Thomas Burch of Little Falls, Herkimer co.

With the exception of the two first lots, there was but little difference in quality, rendering it very difficult for your committee to determine between them.

For the mode of making this cheese, the committee ask leave to refer to the written statements accompanying each lot, and which are herewith delivered.

Mr. Chesebro's Statement.—Number of cows kept, 50; keep them stabled through the inclement season; feed them from three to four times a day with good hay; when near coming in, feed one peck of potatoes each a day, till turned to pasture; salt twice a week in summer, and once in winter, and water accessible at all times; milking very regularly.

The rennet is prepared by taking some whey and salting it till it bears an egg; it is then suffered to stand over night; it is then skimmed off clear; to this is added an equal quantity of water brine, strong as the whey; add to this some sweet brier, thyme, cloves or other sweet herbs, also a little salt petre; the herbs are kept in the brine three or four days, after which it is put into a tight vessel clear from the herbs; add a little essence of lemon or orange; also four large rennets to six quarts of liquor; rennets saved in the ordinary way; cheese made from two milkings, no addition of cream.

Treatment of Milk.—The milk at night is strained into tubs, cooled by setting stone crocks filled with water in them; stand till morning, then dip the top of the milk into a kettle placed over a slow fire, continually stirring till sufficient to warm the whole blood heat, then add the morning's milk; very essential to have it a proper, which is of a blood heat; then add the rennet, two quarts to eighty gallons of milk; let it stand about 30 minutes, then cut it into checks about an inch

quare, with a cheese knife; then gently break it with the hand and whey off; then work it fine with a sharp knife; then add the scalding whey; have it a light scalding heat; let it stand about half an hour, then separate the whey from the curd; then add one tea-cup full of ground Onondaga salt to every 15 or 20 pounds of curd; if the curd is very dry of whey, to 20 pounds of curd; then dip it into the hoop and put to press; press in a lever press two days, turned once in the meantime; then taken out, rubbed with annatto, soaked in ley, then rubbed with lard; placed on shelves and turned daily through the season.

Mr. Fish's Statement.—The cheese presented with this statement was made in the month of ———— from the milk of twenty cows; one day's milk, or two milkings; the quantity of salt, one pound of refined Salina salt to forty pounds of curd; the quantity of rennet no more than sufficient to digest in 30 minutes; curd prepared for the hoops and put to the press; turned down the first day, and pressed in all 48 hours; then taken from the press, placed upon tables prepared for the purpose; turned and rubbed daily, and moistened with whey oil as often as necessary, to keep them smooth and prevent cracking.

Mr. Green's Statement.—The cheese presented with this statement was made in June last, from the milk of twenty-three cows; one day's milk or two milkings; no addition of cream; the quantity of salt, one tea-cup full of refined Salina salt to 20 pounds curd, or about two and a half pounds of salt to 100 pounds curd; rennet prepared by steeping several at a time until the strength is obtained, and then straining off the liquor; use a sufficient quantity to digest in 45 minutes; one tea-cup full to 30 pounds curd, generally answers the purpose when prepared as above; curd prepared and put into the hoop, pressed one hour; then turned and change of cloths, and pressed from six to eight hours; then turned and cloths changed again, and pressed in all 24 hours; then taken from the press; placed upon tables prepared for the use; turned and rubbed daily, and moistened with whey oil as often as necessary.

Mr. Haswell's Statement.—My cheese was made in the month of July from eight cows, with two milkings; with no addition of cream. I used Liverpool salt, about a half pint; the rennet used in quantity about two inches square, and steeped in half a pint of cold water eight hours previous to being put into the milk; they were put in a lever press and remained there 44 hours; were turned three times, and salted in the press; were taken into the cheese room and rubbed and turned every day.

Mr. Burch's Statement.—The cheese exhibited here were made on the 20th and 22d of May, from 44 cows and two milkings; 47 cows were milked in the dairy in all the season; no additions were made of cream, but the cream from the milk kept over night was put in. We use the Onondaga salt, the purest we can get, in the proportion

of a common tea-cup full to 16 pounds of cheese; after the curd is broken up fine in a machine with two cylinders, set with small wire teeth, the salt is put in, and the whole well stirred and mixed.

The rennet when taken from the calf is turned inside out, and stripped clean with dry hands, no water being used; after laying in salt three days, it is turned, stretched on sticks and dried. When wanted for use, one rennet is soaked in two quarts of warm water, and one tea-cup full used for one cheese, weighing as these do, 115 and 116 pounds. The cheese is pressed in "Hales' Patent Self-Acting Lever Press," 24 hours, and turned once in the time.

From the press the cheese goes on to the tables; is colored with annatto, and rubbed over with butter made from cream taken from the whey. Bandages are put on the first day; the cheese turned, rubbed and greased at least twice a week, and through the early part and warm season, nearly every day; much depends upon the faithful performance of this part of the treatment.

The cows are always milked in the stanchels, and the milk conducted from the barn to the cheese room, a distance of 118 feet, in three-fourths of an inch lead pipe. The advantages gained by this are: keeping the milk from the impurities unavoidable from milking out in rainy weather, and in muddy and filthy yards; and the greater comfort in milking.

REPORT ON MAPLE SUGAR.

[*Committee*:—Messrs. L. BRONK, H. BALDWIN, P. N. RUST and J. C. MATHER.]

The committee on Maple Sugar respectfully report, that they have endeavored faithfully to discharge the duties assigned them. There were seven samples presented to them for their consideration, between some of which it was somewhat difficult to discriminate, as they approached each other very nearly both in flavor and color. They award the first premium of $15, to Mr. B. Gauss, jr. of East Bloomfield. This is a very splendid specimen of maple sugar, particularly on account of its whiteness, approaching very nearly to the best refined loaf sugar. Your committee award the second premium of $10, to Mr. W. E. White of Walton. They award the third premium of $5, to Mr. E. Bigelow of Sangersfield. Your committee remark that they consider this a very handsome specimen of maple sugar; and although not as white as those to which allusion has been made, is fully equal, if not superior, to them in point of flavor. They award the diploma to C. Hepinstall of Albany. The specimens exhibited by Mr. O. F. Marshall of Wheeler, and Mr. Woodworth of Watertown, the committee consider as deserving of much praise.

Mr. Gauss' Statement.—Benjamin Gauss, jr. manufactures from six to eight hundred pounds of maple sugar a year; taps about three hundred trees; boils in a sheet iron pan set upon an arch. When the

sap is boiled to a syrup, it is then carried to the house, strained and settled; afterwards it is put into a kettle, boiled and cleansed with milk and the white of eggs, until it will grain. It is then put into pans to drain, then put into boxes to drain. These boxes converge to a point, so that the molasses settles to the bottom. On the surface of the sugar in the boxes, flannel cloths are placed, constantly kept wet with cold water. When sufficiently drained with these cloths, the sugar is melted over again, cleansed again with milk and eggs, and the same process gone through again with the flannel cloths. These cloths are washed every day to extract all the coloring matter from the sugar.

Mr. White's Statement.—Cleanliness is necessary in every part of the process. Coloring matter should be carefully avoided; if the sap is scorched in the least, it will hurt the grain and color of the sugar.

My method is, first have all the sap tubs scoured with sand and scalded before they are carried to the trees.

Treatment of sap.—Boil the sap without delay, and strain the sap before it is boiled; use sheet iron boilers which hold five pails each; boil about twenty pails of sap into one of syrup.

Method of cleansing.—Stir in the white of two eggs into one pail of syrup; place it over a slow fire till it boils. After it is cleansed, strain it through a flannel strainer; place it over a brisk fire till it will rope an inch, then pour it into pans till it grains; from thence into wooden drains filled with gimlet holes, and made tapering from the top to the bottom. Cake sugar is made in the same way, only it is boiled lower till it will stir dry in a spoon.

REPORT OF COMMITTEE ON FRUITS.

[*Committee*:—Mr. J. J. Thomas of Macedon, Chairman.]

The committee made the following awards:

The first premium of $5, for the greatest collection of table apples, to A. J. Downing & Co., Newburgh; the second of $3, to Wm. P. Buel of Albany; the third of $2, to A. P. Heartt of Troy.

The premium of $3, for the best twelve sorts of table apples, to A. J. Downing & Co. Newburgh.

The premium of $3, for the greatest variety of table pears, to A. J. Downing & Co.; the second of $2, to Wm. P. Buel.

The premium of $2, for the greatest variety of winter pears, to A. J. Downing & Co.

To E. Holbrook of Hyde Park, for the best twelve quinces, $2.

To A. P. Heartt of Troy, for the best twenty-four plums, $2.

To Alex. Ross of Hudson, for the best six bunches of native grapes, (Isabella,) $2.

To A. T. Van Slyke of Coxsackie, for the best six bunches of foreign grapes, (Black Hamburgh,) $2.

The committee recommend a discretionary premium of a diploma, to S. Comstock of Lansingburgh, for his fine seedling peach; and also a discretionary premium to S. Van Rensselaer, for his fine specimens of exotic grapes.

REPORT ON FLOWERS.

[*Committee*:—Messrs. A. WALSH, J. O. CHOULES, J. W. JACKSON and A. P. HEARTT.]

The following are the awards of the committee:

On the greatest quantity and variety of flowers—first, to L. Menard of Watervliet, $5; second, to Prof. J. W. Jackson of Schenectady, $3; third, to A. P. Heartt of Troy, $2.

For the best floral ornament—first, to Alexander Walsh of Lansingburgh, $5; second, to S. E. Warren of Troy, $3.

For the best twenty-five varieties of Dahlias—first, to A. J. Downing & Co. $5; second, to S. E. Warren, $3; third, to Prof. J. W. Jackson, $2.

REPORT ON VEGETABLES.

[*Committee*:—Messrs. M. B. BATEHAM, JAMES WILSON, D. BELDING, R. DAVIDSON and WM. BROOKSBY.]

The committee on Vegetables, awarded premiums on Celery, to V. P. Douw, Albany—on Broccoli, to James Wilson, Albany—on Carrots, to Wm. P. Buel, Albany—on Beets, to E. Holbrook, Hyde Park—on Parsneps, to J. B. Nott, Guilderland—on Onions, to J. H. Cole, Hudson—on Cabbage, to James Wilson—on Tomatoes, to Sol. Leonard, Albany—on Egg Plants, to E. Holbrook—on Lima Beans, to E. Holbrook—on Curled Parsley, to J. B. Hudson, Albany—on Squashes, to Dr. H. Wendell, Albany, and J. S. Pangburn, Bethlehem—on Pumpkins, to E. Chesebro, Guilderland—on Melons, to D. Payne, Bethlehem—on Seed Corn, to J. Townsend, Albany—on Potatoes, to Jesse Buel, Albany, Daniel Payne, Bethlehem, A. Walsh, Lansingburgh, and Dr. H. Wendell, Albany—on Ruta Bagas, to W. H. Sotham, Albany—on Salsify, to E. Holbrook—on German Greens, to James Coffee, Albany.

ANNUAL ADDRESS

BEFORE THE

N. Y. S. AGRICULTURAL SOCIETY, JAN. 18, 1843,

BY JAMES S. WADSWORTH,

President of the Society.

GENTLEMEN :—In complying with the request of the Executive Committee of the Society, to address you upon its progress and prospects, I find the embarrassment, which, under any circumstances, would on my part attend the performance of this duty, greatly enhanced by the recollection that the task which now devolves upon me, was, on the occasion of our recent annual fair, so happily and eloquently performed by the late distinguished chief magistrate of our State. I cannot but regard that event as one of the auspicious incidents in the history of our Society. I trust that the appeal which we then listened to in behalf of the dignity and utility of our avocation, breathing as it did throughout, a high patriotism, and a deep solicitude for the objects which this Society is intended to promote, was not lost upon any who had the happiness to hear it. I believe that few of us left the capitol on that occasion, without a higher sense of the importance of self-cultivation as well as agricultural progress, and a renewed determination to improve not only the farm, but the farmer.

The annual fair of the Society, was indeed, in all its main incidents, deemed by its friends eminently successful. The large collection of those animals, the domestication of which seems so intimately connected with the prosperity of the human race, marked the progress of agricultural improvement, and the great concourse of observing spectators bore testimony to a widely diffused interest in the objects of the association.

A large portion of the improved breeds of farm stock, known in this country, or in Europe, were represented on the occasion referred to, by animals of the highest order.

In the collection of agricultural implements and domestic manufactures, the exhibition was rich in the evidences of the ingenuity and skill of American mechanics.

In the distribution of premiums, the Society called to its aid as far as possible, eminent agriculturists of other States, and it is gratifying to know their decisions were almost universally received with the deference due to their acknowledged competence and impartiality.

I find great pleasure in referring to these indications that the Society is, slowly perhaps, but certainly, accomplishing the objects for which it was established, and by the liberality of the Legislature endowed. You will, gentlemen, have seen enough within your own observation, to satisfy you that your patriotic labors are not barren of the happiest results.

It may well add to the gratification, and to the hopeful anticipations with which we regard these evidences of progress, so unequivocal and so universal, that they are achieved in spite of the most depressing embarrassments.

The condition of the farming interests of our country, is indeed truly remarkable. The price of agricultural products has fallen to less than half the range of prices obtained during a period of years so long that they had come to be regarded as settled and permanent. Under this impression, farms were bought, contracts made, improvements undertaken, habits of expenditure acquired, which, under the present range of prices cause difficulties as extensive as they are in many cases, unfortunately, irremediable.

Few of us are aware of the amount of individual suffering, the sacrifice of property accumulated by years of patient toil and frugality, the disappointment of honest hopes, of independence and comfort in advancing years, effected by this revolution in prices. It is no uncommon spectacle to see men now far advanced in life, who, in their earlier years, have been successful pioneers, compelled to abandon the comfortable homes and broad fields, which they have carved out of the wilderness, and seek again, amidst the hardships and privations of a forest life, the recovery of their fortunes.

If none had been swept away by this whirlwind, but those who sowed the storm, there would be but slight ground for our sympathies; but unfortunately, the cause was as universal and all powerful, as it was concealed and sinister.

It would be foreign to our present purpose to inquire into the origin, the history, and the remedy for these evils, and I fear that we could not enter upon the task without trespassing upon those political questions from which I hope this Society will ever keep aloof.

The pain which these wide spread disasters must inflict upon every philanthropic mind, will be greatly relieved by the fact that they are so universally met in the right spirit. Renewed industry and greater economy, are every where the order of the day. But the fact to which I wish especially to invite your attention, as the advocates of agricultural improvement, is that it has not escaped the reflection of the great body of farmers, that the best way to encounter low prices is by improved cultivation. New agricultural implements, new modes of cultivation, improved breeds of farm stock, were never more readily adopted than at this moment of extreme depression of the agricultural interests. There is, in fact, every where depression, but no where apathy. We meet in every direction the most serious difficulties, the most extensive embarrassments, but we find too—thanks to the influence of our free institutions, and the acknowledged energy of our race, every where at work, the perseverance, the patience, and the versatility of expedient, before which all obstacles of *human creation* must give way. Such, emphatically, are the difficulties with which we have to contend. They are the work of men's hands. They come not from the great Dispenser of good and evil, for never were the bounties of Providence more marked in our country than at this moment. Our harvests have been almost universally abundant. Pestilence and famine are no where to be found.

We may thus rely with a well grounded confidence upon the energy of a people at once educated and laborious, to overcome embarrassments which now so severely oppress the whole community. If we turn to the condition of other civilized nations, we shall find that, in the comparison, we have rather cause for self-congratulation than despondency. Widely different is the situation of that people, where the wages of labor are so high that the capitalist finds it difficult to procure an adequate return for his investments, and the situation of a nation in which the wages of labor are so low that the laborer finds it difficult to supply the daily requirements of his half clothed, half fed family.

What are all the pecuniary difficulties so universally felt here, compared with the sufferings of a people of which no small proportion close the toils of the day with barely enough to supply its wants, and without knowing where, in case of sickness or loss of employment, they are to find the food which will keep them alive the next forty-eight hours?

I do not point to these comparisons to gratify the impulses of national vanity, but to show how much more ground we have for renewed and hopeful effort, than for that despondency which seldom seizes but upon feeble uncultivated intellects.

We have, gentlemen, other reasons for confidence in the future; even for the most sanguine anticipations of the developments of coming years.

The application of science, the most profound which has yet been attained by the far reaching efforts of the human mind, to all the products of our industry, to the soil, the crop, the animal, has been reserved for the age in which we live. It is not claiming too much, to say, that more progress has been made in this direction within the last twenty years than in any previous century. Our own countrymen, it is gratifying to perceive, are securing their share of this abundant harvest. Our chemists and geologists will not, we may be sure, rest contented as industrious gleaners after the Davies, Liebigs and Johnstons of other countries, but will push forward into the ample domains, which even those acute discoverers have not penetrated.

From the origin of our race almost to the present time, the path of the husbandman has been clouded in darkness and doubt. From the sowing of the seed to the gathering of the harvest, mystery attended every step. The first link in the great chain of cause and effect was hidden in uncertainty. The precepts of tradition, the result of a multitude of experiments, were founded mostly in wisdom; but they were as inexplicable as they were sound. Not so now. The scientific analysis of soils, of manures, and of vegetable products, explains not only the workings of nature and the practices of art, but opens an inexhaustible field of new combinations and novel results. To spread far and wide this new light in the galaxy of human knowledge, is one of the objects,—I think it will be conceded to be the first object, of this association.

I will not attempt to enforce by any argument or illustration of mine, the high importance of this trust. If other nations, in the vigor of maturity, with more leisure and more means than we possess, have out-stripped us in the race of philosophical discovery, let it be *our* boast, that we have spread these discoveries *wider*, and made them at once available by making them part of the current knowledge of the nation. Let it be our first aim to diffuse knowledge, where the constitution has rightly given power, to the whole people.

It is not, gentlemen, the sole object of our Society, to reward those who bring to our Fairs the finest animals, or to remunerate those who, with skill and industry, raise the best crops. These are but the means, and part of the means, by which it is hoped to achieve higher and wider ends. We wish, by association, by comparison of ideas, and by a generous emulation, to diffuse among ourselves, and the mass of the agricultural community, the results of experience, the lights of science, and the productions of art.

Of the incalculable power, for good and evil, of association and combined effort, the present age abounds in illustrations. That this great element of man's power has often been wielded to trample upon the equal rights, the peace and happiness of society, cannot be denied. Of the many instances in which, with widely different and higher aims, it has effected the noblest achievements, I shall only refer to one. With what language can we describe, with what powers of calculation estimate, the wide spread good accomplished, the deep misery warded off, by temperance associations? What individual, wielding even a despot's sceptre—what government, monarchial or democratic—what law—what armed force, could have achieved the great results brought about in our day, within our own observation, by these efforts? With this signal illustration before us, we cannot lack confidence in any efforts wisely directed to a good end. With motives which cannot be impeached, with objects which can no where be condemned, asking no special privileges, requiring no exclusive immunities, seeking only to elevate and render more effective that labor from which man is destined never to be exempt, we may surely here, if any where, call to our aid the great power of association and combination. With this element of strength we wish to awaken the public mind to a sense of the importance of our avocation, and to dispel whatever may be left of that ancient prejudice, that the tiller of the soil is the drudge of the human race.

It is strange that it should have been overlooked, even in the darkest days of despotism and ignorance and superstition, that he who sows the seed and reaps the harvest, works not only with the plow and with the hoe and with the scythe, but that he wields, far beyond the laborer in any other branch of industry or art, the elements and powers of nature. There is certainly no pursuit in which so many of the laws of nature must be consulted and understood, as in the cultivation of the earth. Every change of the season, every change even of the winds, every fall of rain, must affect some of the manifold operations of the farmer. In the improvement of our various domestic animals, some of the most abstruse principles of physiology must be consulted.

Is it to be supposed that men thus called upon to study, or to observe the laws of nature, and labor in conjunction with its powers, require less of the light of the highest science, than the merchant or manufacturer? Or is it to be believed, that men who go weekly, almost daily, to different occupations, changing with the almost unceasing changes of the seasons, and whose business is to bring to maturity such a multiplicity of products, exercise less the highest intellectual faculties of man, than the laborer who, day after day, and year after year, follows the unchanging manipulations of art?

Happily for the interests of the farmer, the history of our country abounds in evidence that this great misconception of the nature and tendency of agricultural labor, no longer exists. I cannot, gentlemen, allow this occasion to pass without referring to a recent event, which, with whatever diversities of opinion we may regard the great political questions which agitate our country, we, as farmers, cannot dwell upon without emotions of pride and pleasure. When the people of a great State, which, in population, in wealth, in power, if it had not voluntarily surrendered its immunities, might stand up among the independent empires of the earth, without fear and without reproach—of a State, which, in achievements of industry, of genius, of enterprise, we may search the history of the world, and search in vain for a rival—when the people of such a State turn to the ranks of its practical farmers for the unimpeachable integrity, the enlightened wisdom requisite to administer their highest trust, we may well claim that agricultural labor is not inconsistent with the highest intellectual cultivation and moral power.

It is not alone in the brilliant results of scientific investigation, nor in the fertility of the soil, nor in the general salubrity of the climate, that the American farmer finds the ground of his brightest anticipations for the future. There are other and higher elements in the composition of his fate. The government which watches over him is the government of his choice—a government in which the permanent interests of the great mass of the people are secured by placing the power in their own hands. Under such institutions the pendulum of public justice may sometimes vibrate between dangerous extremes, but it must eventually repose where justice and the interests of the many, require that it should rest. Such are the hopes of the farmers of our country. It is not to be denied that their interests have been sometimes neglected, and their rights sacrificed to the sinister aspirations of classes more favorably situated for political combinations; but if there is any foundation for our faith, that a free government is the fountain of equal justice, these aberrations must be corrected in the slow but certain progress of truth and right.

I trust that American agriculture will illustrate and confirm the striking remark of the author of the "Esprit des Lois," a writer, the most philosophical and liberal of his time, "that it is not those countries which possess the greatest fertility, which are the best cultivated, but those which have secured the most liberty." I find this suggestion, so flattering to our hopes, eloquently commented upon by a late distinguished agriculturist of our country, in an address which he delivered before the Agricultural Society of Pennsylvania; and I gladly avail myself of this opportunity to pay to his memory a tribute of respect, which is due, in a more eminent degree, to but one other name in the history of American farmers and patriots. With many other improvements in agriculture, Judge Peters was emphatically the author of the plaster and clover culture. The time which your patience will allow me to occupy on this occasion, will not permit me to recount the many experiments, at once ingenious and philosophical, with which he demonstrated the wonderful efficacy of plaster, nor the efforts, equally persevering and philanthropic, with which he labored to introduce into general practice, this great fertilizer. He succeeded. None but those well acquainted with the course of husbandry in our wheat growing districts, can estimate how much of the eighty-four millions annually produced in our country, is owing to the introduction of plaster and clover. The benefits of this

improvement are to be counted by annual millions; and I call it up to your attention, not only to pay the debt of gratitude due to its distinguished author, but as an incentive to those who, with the better instruments of a more advanced science, have the same field of practical improvement before them. It is happily the nature of human knowledge that the more it achieves, the larger is the field of achievement. As the outer circle of invention and discovery is pushed farther and farther from the center, the more numerous and of a higher order are the objects which present themselves to the investigation of those whose lofty ambition it is to add something to the mass of human attainment.

The Society has endeavored to contribute something to this onward movement by offering prizes for essays upon the application of science to agriculture. I trust that the result will vindicate the wisdom of this policy, and lead to its continuance.

In this country, with just laws, justly administered, where the popular voice can promptly correct every oppressive enactment; where, with common schools and an untrammeled press, knowledge circulates as freely almost, as the air we breathe, it would be surprising, and not less discreditable than surprising, if agricultural improvement did not keep pace with the progress of the country in every other respect. For one, I have no fears on this point; I believe that our progress, with or without agricultural societies—though always greatly accelerated by them—is to be decided and rapid. I am not however, unaware, nor should we ever lose sight of the fact, that agriculture, like learning, has had its dark ages. It has risen to great perfection, receded, and rested for centuries without any apparent improvement. The history of the world abounds with evidence that the cultivation of the earth was at an early day carried to a high point.

In China, it is well known that for uncounted centuries a degree of skill has been exhibited in the preparation and application of chemical and vegetable manures, that is not, even now, equaled in any part of christendom. A recent popular writer counts it as not the least valuable result which may flow from the opium war, as it is properly designated, and which it is to be hoped for the honor of humanity, is now terminated, that by opening a more general communication with that extraordinary people, we may learn something of their agricultural skill. The Chinese are not the only people beyond

the pale of Christianity and modern civilization, who have attained a remarkable degree of skill in certain branches of husbandry. The aborigines of South America and Mexico practiced irrigation upon a scale, and with a perfection of detail, not surpassed in any modern improvements. The Spaniards, superior to them in the art of war, overcame them in battle, but have not equaled them in skillful and industrious tillage.

Throughout all those immense regions of British India, where the indomitable perseverance and courage of the Anglo-Saxons have subjected millions to the control of thousands, the conqueror has learned more than he has been able to impart of practical wisdom directed to the cultivation of the soil. A high cultivation, accompanied by the use of irrigation and mineral and vegetable applications, has there carried the productive powers of the earth to a point never yet attained in those parts of the globe claiming to be more enlightened.

In ancient Egypt, the results were, if possible, more extraordinary. There, not only agricultural productions, but the imperishable monuments of art, surpass even the comprehension of modern science.

Coming down to the early days of the Christian era, we find the Roman writers abounding in sound precepts and suggestions, which even now might be adopted with advantage. Nearly the whole of Varro might be read with profit by our modern farmers. True, it is often tinged with a superstition now happily discarded, and relates to a state of society and government, widely differing from our free institutions.

But in all that relates to tillage, to the preparation and application of manures, his suggestions accord with the views of our best modern practical farmers. In the classification of mineral and vegetable manures, such as lime, marl, and many varieties of compost, he gives to each the relative value which has been affixed by the most profound chemical analysis.

If it is somewhat discouraging to look back and find ourselves but little in advance of the remotest times, in many departments of our profession, we may, at least, congratulate ourselves that we live in an age when agriculture is in the ascendant. It is no longer given up to serfs and slaves, as the fitting occupation of the most ignorant portions of the community. It now takes its rank among the honorable and elevating pursuits of industry. To follow the plow and tend the flock, is no longer, here at least, the mark of ignorance and servi-

tude, as under a false and despotic system it was, and in some parts of the globe still is. In this, we stand upon ground which the ancients never attained. It is the great achievement of modern times. The rights of man and the dignity of labor are vindicated; the one follows from the other. Agricultural improvement then rests upon a foundation on which it never stood before. It is sustained by free institutions; it is the result of laws, wise, because liberal. The enfranchisement of the many, the elevation of the masses, must go hand in hand with the intelligent, industrious, and prosperous cultivation of the earth.

If agriculture owes much to the benign influence of free institutions, liberty owes not less to agriculture. Where do we look for the calm discretion, the disinterested patriotism, which must sustain a representative government, but to the great community of cultivators of the earth? Even those most skeptical as to the fitness of man for self-government, admit that if the experiment ever succeeds, it will be in a nation of farmers. The experiment, thank Heaven, has succeeded; it has succeeded in a nation of farmers; and while we must not be guilty of the illiberality of doubting that the great manufacturing nations of other continents may be fitted to administer the high duties of freemen, it becomes us to cherish a profession which, more than any other, prepares man to receive the highest blessing of his race in this world—a free government. We must cherish it by industry, by virtue, by intellectual cultivation; by connecting it with science and the arts, and with every thing which can elevate and adorn it. If we do our duty by ourselves and our children, agriculture will never again, it is to be hoped, know the dark ages in which for so many centuries, it slept with liberty and learning. Let us do our duty in the responsible station and happy era in which Providence has cast our destiny, and I trust the day is far, far distant, when we shall cease to be a nation of farmers and a nation of freemen.

LIST OF PREMIUMS

AWARDED AT THE

ANNUAL MEETING OF THE N. Y. S. AG. SOCIETY,

January 18, 1843.

At the annual meeting of the New-York State Agricultural Society, held at Albany, January 18, 1843, the following premiums were awarded:

ON ESSAYS, DESIGNS, PAINTINGS, &c.

On Essays—To Willis Gaylord, Esq. Otisco, N. Y. for the best Essay on the General Management of the Farm, $20—to the same, for the best Essay on the Management and application of Manures, $20.

On Designs—A gold medal, for the best Plan of a Farm House, Barn and necessary outbuildings, was awarded to John J. Thomas of Macedon, Wayne county, N. Y. and a silver medal for the second best, to D. G. Mitchell of Salem, Ct.

On Paintings—Gold medals of equal value, to Woodside of Philadelphia, and Van Zandt of Albany, for portraits of Domestic Animals. A silver medal to E. Whitfield, Albany, for the best specimen of Floral Painting.

ON FIELD CROPS.

On Indian Corn—First premium to *Samuel Phelps* of Ira, Cayuga county. 122 bushels per acre—$15.

Second, to *Wm. Ingells* of Volney, Oswego county. 89 bushels per acre—$10.

Third, to *Joseph F. Osborn* of Port Byron. $5.

Fourth, to *Anthony Van Bergen* of Coxsackie, Greene county. 85 bushels 51 lbs. per acre—diploma.

On Barley—First premium to *Nathaniel S. Wright* of Vernon, Oneida county. 53 bushels per acre—$10.

Second, to *T. I. Vandeveer* of Amsterdam, Montgomery county. 40½ bushels per acre—$5.

On Rye—First premium to *Israel F. Goodwin* of Westmoreland, Oneida county. 32 bushels and 36 lbs. per acre—$10.

Second, to *T. I. Vandeveer*, Amsterdam. 28 bushels, 29 quarts per acre—$5.

ON OATS—First premium to *Samuel Phelps*, Ira, Cayuga county. 102 bushels per acre—$10.

Second, to *Wm. A. Russell*, Salem, Washington county. 97 bushels per acre—$5.

Diploma, to *Israel F. Goodwin*, Westmoreland. 81 bushels per acre.

The committee also recommend a special premium of $10, to *Geo. Sheffer* of Wheatland, Monroe county, for his crop of oats of 871¼ bushels, from 9½ acres of land, being an average of 91¾ bushels per acre.

ON PEAS—First premium to *George White*, Rutland, Jefferson county. 33¾ bushels per acre—$10.

ON POTATOES—First premium to *George White*, Rutland, Jefferson county. 1 acre, 1 8-10 rods—421⅝ bushels Pinkeyes—$10.

Second, to *George Sheffer*, Wheatland. 400 bushels per acre—$5.

RUTA BAGAS—First premium to *John McConnell*, Canandaigua. 855½ bushels per acre—$10.

ON BEETS—The first premium for beets, to *George Sheffer*, Wheatland. 1 acre, 12 rods—1026⅝ bushels—$10.

ON CARROTS—First premium to *Wm. Risley*, Fredonia, Chautauque county. 985½ bushels per acre—$10.

Annexed are the statements, in a somewhat condensed form, of the several gentlemen to whom premiums were awarded on Field Crops:

INDIAN CORN—*Mr. Phelp's Statement.*

On the 23d of May, 1842, I plowed up one acre of green sward, for the purpose of planting it with corn. After plowing it once, I harrowed it well, lengthwise of the furrows. I then marked out the ground so that the rows and hills should stand precisely two feet apart either way. On the 25th of the same month, I planted it, and was careful to put precisely three kernels in each hill; when it was large enough, I hoed it, and continued to hoe it three different times. No other tool was used in the process of hoeing and cutting up the weeds, but the hoe; being very careful to keep the weeds and grass down as much as possible, and in hoeing, to leave the ground as near level as possible each time.

I permitted the corn to stand until it was fit for harvesting, without cutting up or topping.

Between the 10th and 15th November, I began to husk it, and also to weigh the said corn. I found the aggregate weight from the said acre, in the ear, 13,286 lbs., of a good quality.

About the first day of Jan. 1843, I thrashed out all the sound corn that grew on said acre, and measured it in a sealed half bushel, and weighed it, and found that it fully held out 60 lbs. to the bushel, and it produced me one hundred and twenty-two bushels of good merchantable corn. My team and man were occupied one day in plowing the said acre; half a day harrowing; two days labor planting; and six days labor, hoeing; and six days labor, harvesting, threshing and weighing. Expense of cultivation, $14.—122 bushels corn at 37½ cents, $45.75.—Profit, $31.75.

INDIAN CORN—*Mr. Ingells' Statement.*

The land on which it was raised, is a warm gravelly soil, and has not had any manure applied for six years. It has been pastured for the last six years, until fitting for the present corn crop. The 30th day of April, carted and spread upon said piece, nine loads of straw manure, and plowed under. May 2d, carted and spread upon the remainder of said acre, eleven loads of straw manure, and plowed under. May 5th, carted and spread upon the furrows, ten loads of rotten manure, and harrowed lengthwise of the furrows. May 9th, planted said piece; rows three feet apart each way. The 24th of May, plastered and ashed it, at the rate of ten bushels to the acre; nine of ashes to one of plaster. June 6th, went through with the cultivator each way. June 7th, hoed said piece, but not the corn, for the frost had cut about three-fourths of it level with the ground. June 24th, went through with the cultivator both ways. June 25th, hoed it again. July 12th, went through with cultivator both ways. July 13th, hoed it the third time. July 15th, sowed on it one bushel of plaster, broadcast. September 17th, cut it up at the roots, and put it in stooks. Oct. 1st and 3d, husked and weighed the entire crop, which amounted to 8,540 lbs; then weighed 500 lbs. and put it by itself. Dec. 6th, weighed it again, and it weighed 391 lbs., making in the whole, on the 6th of Dec., 6,678 lbs. According to the weight of Dec. 6th, there would be eighty-nine bushels of corn, allowing seventy-five lbs. to the bushel. Seventy-five lbs. of ears of corn, will make fifty-nine lbs. of shelled corn—or according to the first weight in Oct., allowing seventy-five lbs., there would be one hundred and thirteen bushels and sixty-five pounds. The amount of corn fodder was four loads on said piece. Expenses, $26.75.—89 bushels corn, at 37½ cts., $33.38.—Profit, $6.63.

INDIAN CORN.—*Mr. Osborn's statement.*

Five acres.—My corn ground was a clover ley of three years standing; had been mowed two years; never had much manure if any. Plowed but once, dragged and rolled. The corn was planted May 10th and 11th, in drills about 3½ feet apart. The corn was much injured by the wire worm and a severe hail storm. Expenses, $122.38.—429¼ bushels at 37½ cents, $160.97.—Profit, ($11.56 per acre,) $57.59.

BARLEY.—*Mr. Wright's statement.*

1st. Soil in good condition at the commencement of cultivation, composed of clay and gravel. Plowed twice, seed harrowed in.

2d. Previous cultivation, once plowing for spring wheat, and harrowed in after corn upon the sward; twenty loads of manure from the yard, at the time of sowing the spring wheat; product, twenty-five bushels per acre.

3d. About twenty loads of yard manure used the present season.

4th. The quantity of seed, three bushels of two rowed barley: sowed the 10th of May, broadcast.

5th. Harvested as follows:—Mowed; lay in swarth two days; raked and put in cocks, and carted to the barn next day. Expenses $15.13.—Product from one acre 53 bushels, 38½ lbs., $23.50.—Profit, $8.37.

BARLEY.—*Mr. Vandeveer's statement.*

My acre of barley was sown upon land in potatoes last year year, once plowed and harrowed, at the rate of about three bushels per acre. Estimated expense:

Plowing, harrowing and sowing,.....	$2 00
Seed,.....	1 88
Harvesting and threshing,.....	3 00
	$6 88
Product, 40 bushels, 14 quarts, at 40 cents, ...	$16 09

RYE.—*Mr. Goodwin's statement.*

Soil, a deposite from red rock formation, with muck, and a minute portion of clay, and perhaps sand; in high condition, no manure this nor the preceding year. In oats last year; plowed once; 70 bushels to the acre.

Seed, 1½ bushels,.....	$1 13
Sept. 1st, sowed, plowed once, 1 day,.....	2 00
Harrowed twice, half day,.....	1 00
1½ days, reaping, ...	1 50
Threshed and cleaned, by hand,.....	2 50
Interest on land, $40 per acre, ...	2 80
	$10 93
Amount of crop, 32 bushels and 36 lbs. This was a choice specimen of grain, and was sold principally for seed, at 75 cents per bushel,.....	$24 38
Deduct expenses,.....	10 93
Profit, ...	$13 45

RYE.—*Mr. Vandeveer's statement.*

My rye was sown on oat and pea stubble; soil, a yellow loam.

Once plowing, ...	$2 00
Harrowing and sowing,.....	1 50
Harvesting and threshing,.....	5 00
Product 28 bushels, 29 quarts, at 75 cents, ...	$21 04

Oats.—*Mr. Phelps' statement.*

In obedience to the rules, regulations, and requirements of the New-York State Agricultural Society, and for the benefit of all who are engaged in agricultural pursuits, I make the following statement:

On the 10th of May, 1842, I had 30 loads of manure drawn upon one acre of land, and spread it evenly, or nearly so, and on the 16th day of same month, I plowed the acre well, and harrowed it thoroughly, and sowed five bushels oats on said acre, and dragged them in. The whole time of plowing and harrowing, was two days; two days harvesting and securing said crop of oats, and four days threshing, cleaning up, and measuring the same; producing therefrom, *one hundred and two bushels* of first quality merchantable oats.

In the same field, I sowed one and a half acres to oats, *without manuring*. I took full as much pains plowing, harrowing, and securing the grain from this one and a half acres, as I did on the said acre. I sowed on this piece, four and a half bushels, and it produced me but eighty-five and a half bushels; clearly showing to my mind, that the greatest benefits always arise from a liberal use of manure, if put on the ground in a proper state of fermentation, and especial care taken to distribute it over the surface evenly.

Oats.—*Mr. Russell's statement.*

The soil is what is generally termed a clay loam; has been in potatoes for the last five years, with the exception of one year, when it was sown to oats; has had a top dressing of about fifteen loads of manure, well rotted, per year, except this season. None the present year. Sowed about the 25th of April, two bushels and three pecks of seed, common oats. Land plowed once, and harrowed with a square harrow, and crossed. Grain reaped between the 1st and 10th of August, yielding fifty-eight dozen and six sheaves of oats. Threshed about twentieth of September, producing by actual measurement, ninety-seven bushels and four quarts, that being the quantity grown upon, and the product of one acre. The expense of cultivation is as follows:

One day's work plowing, sowing and harrowing,..	$2 00
Half day harrowing and sowing,.....	1 00
Seed, 2¾ bushels,.....	1 03
Reaping, raking and binding, and carting to barn, 4 days,.....	3 00
Half day for team,.....	1 00
	$8 03

Oats—*Mr. Sheffer's Statement.*

The soil on which my oat crop was grown, is Genesee flats, a dark clay loam. The land had lain to meadow fourteen years previous to 1840; in the fall of 1840, it was plowed; in the spring following,

corn was planted, and produced fifty bushels per acre. Plowed again in the fall of 1841; and in the spring of 1842 it was harrowed once, then sowed, two bushels of black oats per acre, on the 13th April; after which it was harrowed twice, and afterwards rolled with a heavy roller; 15th June, they were 12 inches high, and were mowed by cutting to within 5 or 6 inches of the ground; 10th to 20th of August, they were harvested by reaping; after which they were hauled, stacked, threshed and cleaned, by one of Pitt's separators.

Expense of the Crop.

6 days plowing in the fall,.....	$10 50
2 days harrowing, 1st time, spring,.....	3 50
Furrowing into lands, and sowing,.....	1 25
Harrowing twice, 4 days,.....	7 00
Rolling, one day, 2 teams,.....	2 75
Mowing in June, 3 days,.....	2 25
22 days reaping,.....	16 50
15 days binding and stouting,.....	11 25
8½ men and 4½ teams, hauling and stacking,.....	10 88
32 days with men, and 21 with horses, threshing, cleaning and measuring,.....	34 50
	$91 40
Value of the crop, at 15 cts. per bushel,.....	$130 69
20 loads straw, at $1.00 per load,.....	20 00
	$150 69

The average yield per acre of the above crop, is 91 bushels, 28 pounds.

PEAS.—*Mr White's Statement,*

Of raising a crop of marrowfat peas, the season of 1842. The condition of the land, green-sward. It had been mowed and pastured for the last eight years. The field contained about three acres or more, as near as I could judge. The ground was plowed seven inches deep, which is the common depth when I turn green-sward. The quantity of seed sown, was ten bushels. They were sown upon the furrows, then harrowed the same way that it was plowed, and then corner ways, minding to turn back the sods that were torn up. There was no roller, bush or manure, used on the ground. Time of sowing was the 13th day of April. Cutting and drawing them in, was the 20th, 22d and 24th days of August. The time of threshing and cleaning one acre, the 1st of December. Number of bushels, 33¼, measured. At the time of cutting the peas, I went and measured off from one corner of the field, one acre, and staked it out, so that they could be by themselves. When we drawed them in, we put them separate from the others; threshed and cleaned separate. The expense of cultivating, harvesting, threshing, cleaning and seed, for the whole piece, is twenty-two dollars.

POTATOES.—*Mr White's Statement*,

Of raising a crop of Pinkeye potatoes, the season of 1842. Previous cultivation of the soil: In the spring of 1840, I turned over about 2½ acres of green-sward, on which I raised wheat. The following season I plowed it but once, and then sowed it to barley, and worked it sufficiently with a harrow, intending it for mowing. But owing to the dry weather in the spring, the grass seed failed. It was not plowed in the fall, on account of the ground's washing; no manure used. The present season plowed once, about seven inches deep, and then drawed on twenty loads of yard and stable manure per acre, and then it was spread and harrowed. I then took the horse and plow, and run the furrows just three feet apart, and the potatoes were then dropped in the furrows, about two feet apart; potatoes cut, and three pieces put in a hill. The quantity of seed, twenty-five bushels. The quantity of land, one acre, one rod, and eight-tenths rod. The time of planting, the 3d day of May. Time of harvesting, the 26th, 27th and 28th days of September. Number of bushels, 421½. The expense of cultivating and harvesting the above crop of potatoes, is fifteen dollars and thirty-eight cents.

POTATOES.—*Mr. Sheffer's Statement.*—1 *acre and* 20 *rods.*

The soil on which my crop of potatoes was grown, is Genesee flats, a dark clay loam. The land had lain to meadow six years previous to the potatoe crop, and about one ton of hay was cut per acre, previous to the potatoe crop. 35 loads of stable and yard manure was applied in April, which was made the previous winter. The land was plowed once, the latter part of May; then rolled, then harrowed thoroughly, then furrowed 3 inches deep, and 3½ feet apart into rows, and planted the last days of May and first of June, 30 bushels of Rohan potatoes, cut so as to average 3 eyes to a piece, and dropped in the furrows one foot apart, and one piece of potatoe in a place, after which they were covered with a hoe, 4 inches deep. They were hoed twice; the first time a cultivator was used, and then followed with a plow and hoe. The first hoeing was done when the potatoes were about 3 inches high; the second time, when the potatoes were 12 inches high, by plowing, and after hoeing. The crop was harvested the last of September and first of October, by digging in the usual way with a hoe.

Expenses of crop, $34.14. Value of the crop, 451 bushels 28 lbs., at 12½ cents per acre, $56.35.

The average yield per acre, on four acres, 401 bushels, 10 lbs.

BEETS.—*Mr. Sheffer's Statement.*

The soil on which my crop of sugar beets was grown, is Genesee flats, a dark clay loam. The condition of the land before planting this crop, was good; the crop previous was potatoes; thirty loads of manure were put on to the acre, the crop three hundred and fifty bushels. Twenty loads of well rotted manure per acre, were then applied to the land, in the fall, and plowed in. The 15th of May, commenc-

ed plowing a narrow land on one side of the field, rolled and harrowed immediately, while the ground was moist; then planted in drills 27 inches apart, five pounds seed to the acre; the seed were soaked in soft water until they were sprouted, then rolled in plaster. During the season, the crop was hoed three times. The first time the plants were thinned out from 10 to 12 inches apart; the second time, the ground was hoed and all the weeds cut; the third time a light plow was used, and afterwards the hoe. The crop was harvested the last of October and first of November, by digging with a spade.

Expense of the Crop.

20 loads of manure, 2s. per load,.....	$5 00
Plowing in the fall, three-fourths day,.....	1 31
Plowing in the spring, three-fourths day,.....	1 31
Rolling and harrowing, 1 day,.....	1 75
Hoeing first time, 8 days' work,.....	6 00
Second hoeing and transplanting, 8 days, ...	6 00
Plowing, boy and horse, 1 day,.....	1 25
Harvesting 14 days, and 4 days with team,.....	14 50
5 lbs. seed, at 2s. per lb.	1 25
	$38 37

Value of the crop, 1,026 bushels and 40 lbs., at 7 cents per bushel,..... $71 87

The average yield, per acre, of the above crop, is 955 bushels.

RUTA BAGAS.—*Mr. M'Connell's statement.*—1 *acre.*

The soil on which my ruta bagas were grown, was part sand and part clay. Two years before, had a crop of wheat, which was overrun with tares and pigeon weed. The following year, I took from it a crop of potatoes. After the potatoes came off, I plowed the land; also twice in the spring, followed by sufficient dragging and rolling. I then applied 24 wagon loads of good manure from the barn yard. They were sown 19th and 20th of May.

Expense, $24.25. Product, 855½ bushels, at 8 cents, $68.44.

CARROTS.—*Mr. Risley's statement.*

The condition of the land previous to the present season, was as follows:—The crop of 1841, was carrots, a part for the roots, and a part for raising seed; the land had no manure put on it for the last ten years, but had been used for a meadow for the most part of the time. In the spring of 1842, there was a light covering of manure, say ten loads to the acre; land plowed twice, harrowed, and raked, and two pounds of seed sown in rows, sixteen inches apart. Sown the 1st of May, and harvested the 15th of October, and the 1st of November, and the expense of cultivation was $31·00. The product on one acre, was 985 bushels.

PRIZE ESSAYS.

ON THE PREPARATION AND USE OF MANURES.

BY WILLIS GAYLORD, OF OTISCO, N. Y.

Introduction.

Of all the pursuits to which mankind, from necessity or inclination, have devoted themselves, there is none more honorable,—certainly none more useful,—than that of agriculture. To pursue this business successfully, knowledge, extensive and varied, is required; for, although a man may succeed by following the beaten paths of his predecessors, occasions will frequently arise, when the end desired may be attained by methods much shorter than those usually adopted, if the farmer is able to form and apply them. It is here that science has, within a few years, rendered the most essential aid to agriculture. Sometimes, reasoning from well known effects to their causes, the agricultural chemist has placed in the hands of the farmer the means of producing results, always desirable, but which, under the older systems of farming, with his utmost care, he frequently failed of obtaining. Again, taking well established facts in animal or vegetable physiology as his starting point, he has arrived at results of the highest practical importance, and is enabled to render more certain and effective the more tardy operations of nature. In no department of agricultural industry, it is believed, have the labors of science been more beneficial or more apparent than in that of the preparation and use of manures; certain it, is there is no department more deserving attention, or where an elucidation of the principles and laws that govern the growth of plants, acts with a more direct and energetic influence.

Definitions.

A definition of the term manure, may be necessary, in order to treat the subject understandingly, as different individuals use the word in widely different senses, some in a wide, and some in a limited one. A few instances of the meaning put upon the term will be given from a few of the modern writers

who have adverted to this topic. Thus Dr. Leiber, in his German Conversationes Lexicon, defines manure to be "vegetable, animal and mineral matters, introduced into the soil to accelerate vegetation, and increase the production of crops." The Encyclopedia, publlshed by the London Society for the Promotion of Useful Knowledge, thus defines it:—"Every substance which has been used to improve the natural soil, or to restore to it the fertility which is diminished by the crops annually carried away, has been included in the name of manure." Loudon, in his great work on Agriculture, says—"Every species of matter capable of promoting the growth of vegetables, may be considered as manure." Prof. Low, in his Elements of Agriculture, says—"All substances which, when mixed with the matter of the soil, tend to fertilize it, are in common language termed manures." Mr. Johnson, in his "Farmers' Encyclopedia," lately published, says—"A manure may be defined to be any fertilizing compound or simple ingredient added to a soil, of which it is naturally deficient." The definitions of Prof. Liebig and Dr. Dana, two of the latest writers on the subject, do not differ essentially from those already given. Of these definitions, I prefer the most simple and comprehensive, that of Loudon, and in this paper shall consider the term manure, as embracing every substance capable of promoting the growth of plants.

Manures, by some, are classed as earthy, organic and saline; others divide them into animal and vegetable, mineral and mixed manures, and some speak of them as composed only of geine or humus and salts. Others class them as organic and inorganic; but these divisions are of little consequence, as every farmer understands that manure is the result of decomposition or change; and that, whether organic, that is, derived from animal or vegetable matter; or inorganic, such as the earths, clay, lime, the alkalies, &c., it is only efficient when presented to plants in certain forms, such as decomposition, division or solution. In France, they have terms to distinguish those substances which act mechanically in improving the texture of the soil, from those which act directly in the nourishment of the plant. The former class of substances they call *amendements*, and the latter ones *engrais*. It is probable, however, that the system which considers all manures as consisting of humus or geine, and salts, comprehending, in the latter term, all the mineral substances that enter into the growth or nourishment of vegetables, will eventu-

Classification.

ally be found the most simple, and at the same time the most accurate of all the proposed divisions of manures. Thus humus constitutes the source of the carbon, forming the principal part of the structure of plants, and the salts, where they do not enter into the structure of plants, are active in preparing the other inorganic elements, and exciting the vegetable organs in their reception and appropriation of nutriment.

Humus or geine is simply decomposed animal and vegetable matter; and as from it, by the action of oxygen, carbonic gas is derived, to be absorbed by water and taken up by the roots, or mixed with the atmosphere and taken up by the leaves of plants; or, as some agricultural chemists with good reason suppose, is under certain circumstances dissolved, or is soluble, and thus rendered fit for immediate nourishment to plants, it must be considered the most important item in the production of manures. The salts, which are the most efficient in aiding vegetation, or the most active manures, are those formed from the alkalies and their various combinations. Thus, from pure lime or calcium, is formed, by the union with carbonic acid, *carbonate of lime;* with phosphoric acid, *phosphate of lime*, the base of bones, one of the most efficient of fertilizers; with sulphuric acid, *sulphate of lime*, or gypsum, the value of which is well understood; and so with the other alkalies, which, in their combinations, form substances of the utmost consequence to plants. It is well known that the outer covering of some kinds of cane, contains so much flint or silex as to strike fire with steel; and some of the grasses contain this substance in such quantity that their ashes will melt into glass with potash. Now, this hardness, so necessary to their perfection, could not be attained unless this flint had been rendered soluble by union with an alkali, forming a silicate of potash, and by this solubility been rendered fit for the action and appropriation of the plant.

Humus or Geine.

If we would know what kind of food is required by plants, one of the first steps necessary is to ascertain of what the plants themselves are composed. The combinations of matter may be said to be absolutely endless; but the original elements of this multitude of combinations, are few in number. Chemistry has detected only some fifty-five substances incapable of further reduction, or what are called simple substances; and of these, strange as it may appear, only four, except in proportions merely accidental, go to the forma

Food of Plants.

tion of plants. Of these the first is *Carbon*. This forms from 40 to 50 per cent by weight, of the plants cultivated for food; and is therefore most important to animals and to man. The second of these simple substances, is *Oxygen*. The quantities of this substance are immense; and though we are acquainted with it only in the form in which it exists in the air, nearly one-half of the solid crust of the globe, 21 per cent of the atmosphere, eight pounds in every nine of water, and more than one-half of the living bodies of all plants and animals, are oxygen. *Hydrogen* is the third substance peculiar to plants. This is the lightest of known substances, and forms a small part of the weight of all animal and vegetable bodies; constitutes one-ninth part of the weight of water, but enters into the composition of none of the masses that go to form the crust of the globe, coal excepted. The fourth simple substance, entering into the formation of plants, is *Nitrogen*. This forms 79 per cent of the bulk of the atmosphere, constitutes part of most animal and some vegetable substances; is found in coal to the amount of one or two per cent, but does not exist in any other of the mineral masses constituting the crust of the globe. Although not an abundant substance, the importance of it is not the less decided, and some of its functions are of the most indispensable kind. Plants then, are composed of carbon, oxygen, hydrogen, and nitrogen; the first derived from carbonic acid, the second from the atmosphere, the third from the decomposition of water, and the fourth from ammonia absorbed by water, and taken up by the roots of the vegetables. Some of the earths are occasionally detected in plants, and salts of some kind are always present. In the preparation of manures, the principal object to be aimed at, it is evident, must be to supply the materials needed to furnish the carbon and the ammonia; and these are found in the greatest abundance in dead or decomposed animal and vegetable matter.

Law of Nutrition.

It seems to be a law of nature, that the higher the grade of the animal, or the more complicated its organization, the greater the necessity of a corresponding degree of organization in the substances used as food: indeed the manner in which the crude materials, found in the earth and atmosphere, are worked up by plants into a state suitable for conversion into the flesh of animals or food for man, exhibits the strongest proofs of benevolent design in the formation of such grades of organized matter. Man can, indeed, live on plants, but his teeth demonstrate that flesh was to con-

stitute no inconsiderable portion of his food. As all animals receive their food, either directly or indirectly, from the vegetable kingdom, it is evident their excrements, or their decomposed bodies, must form manures of the most valuable kind; and it is to this source, the excrements of animals, that the farmer must look for his supply of manures to restore the fertility of the soil. In treating further of manures, it will be best to begin with this, as the most important class.

Amimal Manures.

A late British writer on agriculture, says:—"The chief use of cattle on an arable farm, besides those necessary for the operations of husbandry, is to produce manure for the land. If the cattle repay their food, and the expense and risk attending their keep, the manure is sufficient profit. Even with a moderate loss, they must be kept, when manure cannot be purchased. The loss, if any, on the cattle, must be repaid by the increase of the corn crops. Manure is to a farm, what daily food is to an animal; it must be procured at any sacrifice." Common barn-yard or stable manure is the kind to which most farmers must look for the fertility of their farms. This consists of the droppings of the cattle, mixed with the straw used for littering in stables or thrown into the yards for the amimal to feed or lie upon, the coarser hay and weeds refused by the stock, and the urine of the animals kept in the stables or yards. This is constantly trampled, is usually kept moist if not wet, and is finally decomposed, or converted into manure fit for the production of crops. This is the most usual course, but it is evident that there must, in this method, be a serious loss to the farmer, of the more valuable properties of the manure. In this way, the decomposition is unequal; a part will be converted into mold while the other will be scarcely acted upon; the salts and the more soluble parts of the excrements, which are the most efficient ones, are dissolved by the rains, and carried off by the drains, or lost in the earth; and where any considerable degree of heat is evolved, as there will be when the decomposition is rapid, or is going on in large masses, the escape of ammonia, so easily detected by the smell, shows that the nitrogen, so essential to the growth and perfection of a grain crop, is rapidly wasting.

Preparation.

To prevent these results, and secure the whole benefit of the manure, two methods have been adopted. The first consists in applying the manure fresh, or in a long state, to the fields it is wished to manure, without waiting for it to decompose. In

this way the manure collected in the yards during the winter, is removed in the spring, and applied to such crops as require it the most; and as no fermentation ensues in ordinary cases, until the commencement of hot weather, two sources of loss at least are avoided, those of the washing away of the soluble parts, or their being carried off in the shape of gas. Where there exists no necessity for retaining manures for other than spring crops, and where the crops cultivated are such that long manures are suitable for their growth and tillage, this mode of disposing of manures must be considered one of the best that can be adopted. But in many cases the formation of manures in the yards and stables of the farmer is going on the whole year; and preservation in masses, or by being scattered in yards during the hot months, would be to greatly lessen, if not mostly destroy its value. Besides, there are some crops, such as some of the root crops, in the cultivation of which experience has proved fully that rotted or decomposed manure is far preferable to long manure, as much of it is already in a soluble state, and is available to the plants at the time they need hastening the most, which is the period immediately after germination. Where the waste of manure is to be prevented during the summer months, or it is desirable to provide a quantity of fully rotted manure, then the second method should be used; and this indeed, by many excellent farmers, is considered the best in all cases.

In this method, the practice is to remove the dung from the stables and yards at short intervals, and place it in large piles or masses, that the proper fermentation may take place previous to its use. When a pile of manure is made in this way, the fermentation takes place in the quantities applied, as they are successively deposited, and therefore does not reach usually that point in which material loss is sustained. If it is found that the heat is becoming to great, or the fermentation injuriously rapid, so as to cause the escape of ammonia, a layer of earth or sods placed over the pile, will retain, by combination, the escaping gases, and thus prevent the loss. It has been found a most excellent plan, one which not only greatly increases the quantity of manures made in this way, but adds to its quality, to mingle with or cover the successive deposits of manure with earth from ditches or ponds, peat or muck from swamps, or turf from bogs or plowed lands, as such layers, consisting mostly of vegetable or animal matters, will, by absorbing the drainings of the manure, or

Fermentation.

the absorption of the escaping gases, be converted into one of the most efficient of fertilizers. The more solid such deposits of manure are made, the more slow will the fermentation be, and hence in unloading, the carts or wagons may be driven over them if necessary to expedite the work, where the immediate use of the manure is not an object. Should the dung placed in these heaps be too slow in fermenting, it may be hastened by opening the piles, or still better by making holes in the top, into which the wash of the yards and the urine of the stables may be poured. This method has another advantage. The manure from the yards, if not wanted as long manure, may be removed to the fields where it is to be used, at times when the men of the farm cannot be otherwise profitably employed, and will be at hand, ready fermented in these piles, when a further transportation might be difficult if not impracticable.

It is a question of considerable importance to the farmer, and one which has been much discussed, whether it was better to apply manure in its long state always, or always allow its full decomposition before using. From his own experience, the writer has been led to doubt the correctness of either of these positions. It seems to be universally admitted that matter, to be efficient as a manure, must be soluble, and it is clear that the more solid parts of farm yard manure require to be softened by putrefactive fermentation before they can be considered in this state. Where, then, the influence of manure is required to be felt at once, as on the turnep, beet and carrot crops, in order to push them forward at the first start beyond the reach of insects, my experience is, that the manure should be in a state reducible to powder, in which condition a large portion of it may be expected to be soluble, and of course at once available by the plant. Where, during the fermentative process, the mass has been reduced to a black carbonaceous matter, it may be inferred that the heat was too great, and the manure seriously damaged; on the contrary, if the mass, while perfectly fine, dry and friable, still retains its dark brown color, it will usually be found that none of the good qualities have been lost by over-fermentation.

Long or rotted.

But where the manure is to be applied to crops which do not require forcing forward in the early part of their growth, but demand as much or perhaps more nutriment at a late period of their vegetation to perfect their seeds or roots, then experience has shown that it is best to apply the manure without any considerable fermentation to

the soil. Indian corn, potatoes, and the grain crops generally, are of this class; the two first particularly. The time when corn and potatoes require the most nutriment, is at the time when the ears and tubers are forming; and when manures but partially fermented, or used fresh from the yard or stable, are applied, the decomposition is comparatively gradual, and the supply greatest when most needed. I cannot recommend the application of manures of any kind directly to grain crops, as it has a tendency to give straw at the expense of the grain, and wheat so manured, is far more apt to suffer from mildew or rust, than when the manure, by application to other and previous crops, has become perfectly incorporated with the soil. In this state, that rapid growth, which is the result of first fermentation, is avoided by the wheat plant; and the substances necessary to perfect the berry are already prepared and within reach of the growing or maturing plant.

Quality of Dung.

Dung varies much in its quality, not only from the perfection or imperfection of the fermentation to which it is subjected, but also from the animals producing it, and the food which animals receive. The richest and most effective manure we have ever used, was that from the hog yard, and produced by fattening hogs. That from cattle, fed on corn meal and oil cake, will be little inferior; and either will be found 100 per cent better than ordinary farm yard manure. The reason of this is very plain. Such animals are fed with substances abounding in the materials most needed by plants, with very little admixture of useless matter, and the comparatively small quantities of animal matter and salts added, rather contribute than detract from its efficacy. The dung of sheep is more valuable than that of horses or cattle not fattening, as the materials are more perfectly assimilated or mixed in mastication, and more fully decomposed.

Green Crops.

Next to farm yard manures, to keep up the fertility of his lands, the farmer may most certainly rely on green crops, either fed off upon the land, or turned under by the plow, and there allowed to ferment and decompose. For a plant to enrich exhausted soils, affording as it does both top and roots to a large extent, there is no plant equal to clover; and particularly where it is necessary or desirable to have the green crop fed off by animals. I prefer letting the clover grow until nearly or quite in blossom, and then turning sheep upon it. They will eat much of it and fatten rapidly; but they

will trample down more, and this, mixed with their dung, forms in its decay a most efficient top dressing; and repeated for two or three years, forms an admirable preparation of the soil for wheat or other grains. When a crop is cultivated to be plowed in, it should be done at the time when the plants contain the greatest quantity of nutritive matter, and have least exhausted the soil in which they are growing. This, in most cases, will be when the plants have come fully into flower. At an earlier period there may be as much weight, but a larger portion of it will be mere water; and, if allowed to stand much later, the soluble matter is lost in the seed, and the ligneous part of the stem becomes more difficult of decomposition. Buckwheat is a good plant for a green manure; its growth is rapid, and gives a great weight per acre, and two crops may be plowed under in a year. The best way of plowing in such green crops, is to pass a heavy roller over them, which lays the plants close to the ground, and greatly facilitates covering them by the plow. It is believed that corn, sown broad cast, and when just showing its tassels, cut and covered by the plow, would be one of the best crops that could be chosen for this purpose. A man or boy, in this case, would be required to follow the plow, to place the corn in the furrow for covering, at the next passage of the plow. Taken at this time, corn abounds in nutritive matter, and could scarcely fail of proving a first rate fertilizer of the soil.

A variety of decomposed vegetable matters, or those partially decomposed, are used as manures. The fallen leaves of trees are of this class; but the instances are few in which they will repay the expense of gathering; perhaps never, in the United States, where the other sources of an abundant supply of manures are so numerous. If collected, the best method of using them, is to litter stables, or form beds for pigs, or mix at once with other manures; as, in such ways, they absorb urine and other fluids that might escape, and together undergo decomposition. But the most important source of decayed vegetable matter, and one, the value of which is not yet by any means sufficiently understood or appreciated, is to be found in the great deposits of this substance in swamps, low meadows, and peat bogs, in all parts of our country. On the subject of this kind of manure, there is no authority equal to Dr. Dana of Lowell, Mass. According to him, peat consists of soluble or insoluble geine or humus, with a few salts. From an analysis of ten specimens from dif-

Peat.

ferent parts of Massachusetts, the highest and the lowest in the scale of soluble geine, is selected and given here, as well as two specimens of pond mud. This is done, as the value of neither peat or such mud is sufficiently appreciated by the farmer; and they are neglected when they might easily be made a source of the greatest fertility:

		Soluble Geine.	Insoluble Geine.	Total Geine.	Salts and Silicates.
Analysis.	Peat.	10.15	49.45	59.60	40.40
		48.80	43.60	92.40	7.60
	Pond Mud.	5.10	8.90	14.	86.
		8.10	6.50	14.60	84.40

In his analysis of various manures, he takes for his standard, cow dung; and it is not a little remarkable that the constituents of peat and cow dung, should so nearly coincide. Dr. Dana's estimate of the several parts of peat of average quality, and of cow dung, is as follows. The peat was fresh dug, in this case; before, it was dried at 300°.

Comparison with Cow Dung.

	Peat.	Cow Dung.
Water,	85.	83.60
Salts,	1.	.95
Geine,	14.	15.45

But notwithstanding this decayed vegetable matter is so rich in the organic elements of plants, experience proves that, applied in its natural state, it is almost valueless as a manure, compared with stable manures; and hence the reason it has been so little prized. Science has shown the cause of this result, and the means of obviating it; or, in other words, of unlocking the fertilizing powers of these vegetable deposits. To be able to give out ammonia, the peat or swamp muck must be fermented; and this may be effected by the direct addition of alkalies, or by making the peat into a compost with fresh manures. If alkalies are added, the quantity necessary to bring a ton of fresh peat into the same condition, so far as regards ammonia, as cow dung, would be "92 lbs. of potash, 61 lbs. of soda, or 16 to 20 bushels of common house ashes." But the farmer will usually find the best method of using peat, will be to combine the peat with manure, by mixing it with dung in his yards, or making it into compost. Many experiments have been made by some of the best farmers and gardeners of Massachusetts, in relation to the use of peat; and all unite in pronouncing it most valuable. Mr. Phinney of Lexington says, that "a cord of green dung converts twice its bulk of peat, into a manure of equal value to itself; that is, a cord of clear stable dung, composted with two of peat, forms a

Peat Composts.

manure equal in value to three cords of green dung." Mr. Robbins of Watertown, though owning a large stock, makes no use of their manures. These he sells; but keeps his farm in a high state of fertility, by mixing swamp muck or peat with spent ashes from his soap and candle factory. The proportions he uses are, one part of spent ashes to three of peat, dug up in the fall and mixed with the ashes in the spring. After shoveling over two or three times, it is spread and plowed in. The effect is felt at once; and so far the manure has proved durable.

Use of Peat or Swamp Muck.

According to Mr. Colman, in his Fourth Report, two thirds of the manure used on the extensive garden and farm of Mr. Cushing, near Boston, is made from meadow muck or peat. The compost, for top dressing meadow and grass lands, is made by taking the muck from the pit in August or September, where it lies to the next year. The compost heap is then made on some convenient place, by spreading a layer of muck eight inches thick; on the muck four inches of ashes; then another layer of muck, and so on for five layers, making a pile five feet high, in the form of a ridge. This lies through the winter, is opened and mixed in the spring, and the next fall is spread on the land. The compost for plowed lands is made of two-thirds muck and one-third manure. Fresh manure, or that which has not fermented, is always used, and care is taken not to put in so much muck as to prevent the compost's heating. The fermentation of the manure decomposes the muck rapidly, and when this is done, the compost is fit for the land. Horse manure or unslacked lime, accelerates the fermentation—colder manure retards it. It is the opinion of Mr. Cushing and his gardener, that muck for mixing with cowdung, or for putting in hog styes, should be dug from the swamp six months before using, as the action of the atmosphere facilitates the change necessary. Muck, without this preparatory fermentation, they consider of little importance as a manure.

Pond Mud.

Pond mud, although not as rich in vegetable matter or humus as swamp muck or peat, is still one of the most valuable of fertilizers. The quantity of earthy matters it contains, is rather an advantage than otherwise, when applied to light or sandy soils, and will rarely be found injurious on any. As a manure, the action of pond mud is more immediate than that of unfermented muck, owing to the much greater proportion of salts and silicates it contains. It is astonishing what quantities of this manure are lying worse than

useless in the thousands of mill ponds in our country. In the winter of 1839–40, Mr. Whalen of Saratoga co., drew from a pond on the Kayaderosseras creek 1000 loads of pond muck, and put it on a field of 17 acres; soil light and sandy, or gravelly, and reduced by *skinning* until it would produce nothing but sorrel and mullein. This field, planted to corn, gave him 850 bushels. The extra product from the use of this manure, he estimated at twenty bushels per acre. In the winter of 1840–41, he took from the same pond 700 loads, and applied it to two other fields, and with similar results. Mr. Whalen has also, at different times, drawn 800 loads of muck from an ash swale, and found it to nearly or quite equal in its effect on vegetation, the pond mud. After the corn, Mr. Whalen has uniformly grown oats; and on these worn out lands, where he formerly would have lost his seed oats, as well as the grass seeds used, he has been successful, both taking well where the mud or muck had been used. For heavy loams or clay, Mr. Whalen is of the opinion that a mixture of lime or yard manure, with the muck or mud, would be indispensable. This mixture, the experience of Mr. Clark of Northampton, and others, shows, is well effected by placing the muck in the cattle yards or pig styes, to be incorporated with the manures by the feet or noses of the animals, and to act as absorbents of the urine and soluble matters that are too frequently lost.

Night soil.

Night soil, or the contents of privies, is one of the most powerful and valuable of manures; but prejudices, combined with the difficulties formerly attending its use, have prevented much attention to it in England or the United States, until within a few years. In consequence, a substance of the greatest importance to the farmer has been regarded as a nuisance, and, in the vicinity of large cities, has truly been so. Now, since science has taught the mode of preparing it for use, its use is becoming general, and its value fully appreciated. According to the analysis of manures, made by Boussingault and by Dr. Dana, there is no manure ordinarily accessible to the farmer so rich in the carbonates or salts of ammonia as this. This will be seen by comparing it with horse dung, the value of which is well understood.

	Horse manure.	Night soil.
Geine,	27.	23.
Salts,	.96	1.2
Carbonate of ammonia,	3.24	15.32

The dung of the fattening hog approaches night soil in value, more nearly than any other; indeed Dr. Dana supposes that for all the purposes of analysis, these may be arranged under one head. In practical use, Von Thaer, on the Prussian government farm, determined by experiment its comparative value as follows: If a soil without manure, would yield three bushels of produce for one sown, manured with different substances the result was,

Hog Dung.

Without manure,.....	3	for	1 sown.
With cow dung,.....	7	"	1 "
With horse dung,.....	10	"	1 "
With night soil, ...	14	"	1 "

In some experiments made by Arthur Young, and detailed in the Annals of Agriculture, the effect of this manure on wheat was as follows:

Comparative value of Night Soil.

Simple soil, per acre,.....		12½ bushels.
Bushels of night soil,.....	320	37½ "
" "	240	32½ "
" "	160	31¼ "
Cubic yards of farm yard compost,	60	25 "
" " "	30	23¾ "
30 do. and 1 cubic yard of chalk,.....		25 "

Applied to potatoes, the results were not less decisive:

Simple soil produced per acre,.....	120 bushels.
Night soil, 10 wagon loads,.....	600 "
Bones, 10 "	650 "
Hog dung, 60 one horse cart loads,.....	480 "
Yard compost, 60 one horse cart loads,....	300 "

The most common method of using night soil, or at least that in which it is most portable and least offensive, is to convert it into poudrette. This is done to the best advantage in large manufactories; and hence they are usually established in the vicinity of large cities, where the original article is easily obtained. Different processes are adopted, but the most common is to slowly dry the night soil in pans, having previously mixed it with plaster or ground peat. The object in adding plaster or peat, is to prevent the escape of ammonia, on which the value of the manure is mainly depending. The dried mass is then pulverized—is perfectly inoderrous, resembles a dry brownish powder, and may be used broad cast or in drills. In Paris, a powerful manure is made, also called poudrette, by boiling the offals of the slaughter houses into a thick soup, making this into a stiff paste by stirring in coal ashes, then drying and grinding.

Poudrette.

Urate, is a manure formed from a compound of urine, sand and plaster of Paris. In Paris, where the manufacture is most perfect, the gypsum is burnt previous to using. The value of the urates, as manure, will be better understood from the annexed table:

Urate.

Water,	65.
Urea,	5.
Bone dust,	5.
Sal ammoniac and muriate of potash,	15.
Sulphate of potash,	6.
Carbonate of potash and ammonia,	5.
	100

From this, it will be seen that urate abounds in those substances most necessary to give fertility to soils. Dr. Dana remarks that a cord of loam, saturated with urine, is equal to a cord of the best rotted dung; and in some experiments made by the French Royal Society of Agriculture, which may be found detailed in the *Dictionnaire d'Agriculture Pratique, Paris*, 1828, for the purpose of comparing it with night soil, pigeon's dung, &c., known to be very effective, the result was in favor of the urate. When mixed with dried night soil or poudrette, its effect on various crops was very great. From the experiments there instituted, it appeared that urate alone acted most favorably in moist seasons. It must be remembered, however, that night soil, when properly prepared, retains all the urine, or rather its fertilizing qualities; and the fact that urine is of itself so valuable a manure, should put farmers on their guard against suffering it to be lost from their stables and yards, as is usually done.

Where the farmer is so situated that no poudrette manufactories are within his reach, he will find that by making it into a compost with swamp muck, ashes, peat or gypsum, he will have a manure that may be easily applied, and which will possess great fertilizing powers. The Chinese have long been celebrated for the extensive use of night soil. Their method is to make it into cakes with a rich marl, which, when dried in the sun, constitute a regular article of traffic, almost a legal tender. The Flemings were the first of the Europeans to make a common use of night soil as a manure, and hence its name of Flemish manure. There it is applied directly, and without preparation, to any crop for which manure is wanted; and the superiority of Flemish agriculture, and the great fertility of their soils, may be, in a great measure, attributed to their careful saving and use of matters which others have been most

Use of Night soil.

anxious to be freed from. In Spain, the celebrated asparagus of Saragossa is grown on beds of loose gravel and sand, but a little above the flow of the tide; but these beds are heavily manured, after the cutting of the season is closed, with fresh night soil dug in, and thus their fertility is sustained, and the unrivaled character of the Saragossa asparagus maintained.

Bones, ground or crushed, form another powerful manure; and although but little used as yet in this country, there are some indications, such as the erection of mills for crushing them, that their use will soon become extensive, and our farmers be saved the mortifying spectacle, so long witnessed here, of seeing ship loads of bones exported to Europe, used by farmers there, and returned to us in the products of the soil. Col. St. Leger of Wormsworth, was the first to introduce bone manuring into England in 1775; but it was many years before their value was fully understood; and it was only in connection with the turnep culture, that they came into general use. The manner in which bones act as manures, and their value, will be best seen by a statement of their constituents. The bones of the ox, according to Berzelius, contain in 100 parts:

Bones.

Cartilage,	33.3
Phosphate of lime,	55.35
Fluate of lime,	3.
Carbonate of lime,	3.85
Phosphate of magnesia,	2.05
Soda, with a little common salt,	2.45
	100.

The analysis of Fourcroy and Vauquelin, gives:

Gelatine and oil,	51.
Phosphate of lime,	37.7
Carbonate of lime,	10.
Phosphate of magnesia,	1.3
	100.

Johnson, in his lately published work on Fertilizers, says: "Dry bones contain about two-thirds their weight of earthy matter, the other third chiefly of animal matter, resembling glue. Of the earthy matter, five-sixths consist of phosphate of lime and magnesia. A ton of bone dust, contains of

Animal matter, about	746 lbs.
Phosphate of lime, &c.	1,245 lbs.
Carbonate of lime, &c.	249 lbs."

Bones, however, vary somewhat in their constituents, some containing more of the earthy, and others more of the animal parts; take those of the calf and the elk for examples, to which the teeth of the horse are added.

	Phosphate of lime.	Carbonate of lime.	Animal matter.
Calf,	54.		46.
Elk,	90.	1.	9.
Teeth,	85.5	15.5	

It is evident then, that bones abound in matters capable of producing ammonia. Dr. Dana estimates its power in this respect to be equal to 8 or 10 times that of cow dung, while, if the salts are regarded, 100 lbs. of bones, contain nearly 66 times as much as the same quantity of cow dung. Experience proves that the power of aiding crops, between dung and bones, is about in the proportion of the constituents named. It is evident that much of the value of bones depend on their cartilage. Boiling bones, as generally practiced, has but little effect in extracting the gelatine; and does not remove even all the fat or oil. Under high pressure, as in Papius's digester, the separation of the animal from the earthy matter is complete. The finer bones can be crushed or ground, the better or quicker will their influence be felt; and boiling, by removing the exterior cartilage and fat, renders the crushing more perfect. It is owing to this cause, undoubtedly, that many of the English agriculturists prefer dry to fresh bones; as the dust made from the former, is more suitable for sowing or drilling with seeds, than that of the latter. Bone dust is the most efficient on light and dry soils. It has been found also very useful on limestone soils and light loams; but on heavy clay or wet soils, this manure does little or no good. Bone dust is one of the most efficient manures on clover, particularly the white clover; exceeding gypsum in its effects on this plant. This is accounted for by the fact, that white clover abounds in phosphate of lime; and the phosphates of bones supply it in abundance. Although principally employed as a manure for turneps, in consequence of their importance in a rotation of crops for the animals of the farm, particularly sheep, it is considered by many farmers quite as useful, employed as a manure for potatoes, as it is for turneps. Bones are found to be more valuable, if subjected to a partial fermentation before being applied to the crops. If mixed with five or six times their weight of vegetable mold or fine rich earth, and turned over for several times for a few weeks before using, the value is much increased. Since the

Use of Bones.

general use of bones has been introduced into England, vast quantities are gathered and imported from all parts of the world. As an instance of this traffic, it may be mentioned that at Hull alone, in 1815, 8,000 tons of bones were imported; and this amount, at the same place, had increased in 1835, to 27,500 tons.

Guano.

Guano is another manure of animal origin, which has lately been brought to notice. It is the excrement of sea-birds; and the immense masses of it existing on the rocky isles of the Pacific, in the vicinity of Arica in Peru, are the accumulations of centuries. That, in this state, it differs from the newer excrements, can scarcely be questioned, as the action of the atmosphere must have produced many chemical changes during the lapse of years. Analysis shows it to consist chiefly of insoluble and soluble salts, chiefly phosphate of lime and organic matter, or salts 32 parts, and organic matter 68. A large portion of the organic matter is uric acid and ammonia; and regarded as a manure, it may be considered as a urate of ammonia. It appears as a fine brownish powder, with a strong marine or fishy smell, and gives off ammoniacal fumes when heated. Several ship loads of this manure have been carried to England; and the experiments show, what indeed the analysis would prove, that it is to be classed among the most efficient of manures. It has succeeded well, whether applied to grain, grasses, or to roots. There is no necessity of enlarging on this manure here, as it is not probable that it will ever be introduced to any extent into the United States, while we have so many easily accessible sources of fertility that have as yet hardly been touched, among us. It may be mentioned in this place, that the dung of domestic fowls is one of the most valuable of farm manures, far exceeding in power even that of the hog or horse; and though not equal to guano in ammonia, probably from there not being as much animal food used in its production, still deserving more attention in this respect than it has received.

Various animal products.

All animal products, capable of putrefaction or decomposition, can be converted into manures; fish, flesh, gristle, sinews, skin, horns, hair, wool, and indeed all animal solids or fluids are of this character. The man who allows his dead animals to putrefy and waste away above ground, is guilty of great improvidence; and converts what might be made a valuable manure into a decided nuisance. A dead horse, covered with earth or vegetable mold, mixed with a little lime or gypsum, will, when decayed and

converted into manure and spread on the soil, add to the value of the wheat or corn grown, not enough perhaps to buy a valuble new one, but not unfrequently more than the worth of the original animal. A more disgusting sight can scarcely be imagined, than to see the fences and trees around a farmer's yard dressed out with dead lambs or other defunct animals in the spring season. All such, should be buried at once, and thus made available in other forms.

Of the substances named above, fish is the one most commonly used as a manure. In the vicinity of the sea, large quantities of fish are annually used in enriching the soil. This is particularly the case on Long Island and in Rhode Island. They are sometimes spread broadcast on the earth and plowed in; at other times deposited in the hills of corn; sometimes spread over the meadows after the crop is mowed, and allowed to putrefy in the open air. The stench, where the putrefaction goes on in the open air, is intolerable; and can only be endured by those whose olfactories have been accustomed to the nuisance. This is a most wasteful practice, and should long ago have been abandoned. Treated in this way, but a small part of the actual value of the fish is realized; and it is not to be wondered at, that where the methods of using this manure are so different, widely different ideas of its value should be entertained. Fish should never be used fresh, or thrown at once upon the soil. The true way of preparing them as manure, is to make them into compost, by placing them in layers with muck, rock weed, peat, or even common loam, to putrefy. Where the soil is heavy or inclining to clay, where the compost is to be used, common shore sand, containing as it does large quantities of particles of carbonate of lime, will be found useful as a composting ingredient with the fish. When the fish are decayed or putrefied, the mass should be dug over, the parts thoroughly mixed, and if much ammonia or offensive gas is liberated, a covering of earth should be given, and the mass be allowed further to ferment before using. In this way, fish never fail of being a valuable manure. Rock weed, eel grass, or in short any of those vegetable or animal matters that abound on the sea shore, may be advantageously used in the preparation of these composts.

Fish.

There are many manufactories, particularly those of skins, furs and wool, where large quantities of manures of the most powerful kind are annually suffered to go to waste, though to a much less extent than formerly. The refuse of such establishments,

Refuse of Factories.

now frequently considered, and justly as now treated, a nuisance, may, by simple application to the soil, or still better by being made into compost, be used as the best of fertilizers. One of the best farmers and most successful breeders of our country was driven into the business of agriculture, in self defence as it were. He was an extensive manufacturer, and the difficulty of disposing of the refuse and waste of the establishment, compelled him to purchase a farm in the vicinity of the city, in enriching which, these matters have been most successfully employed. Those farmers who formerly could not be induced to receive such refuse materials as a gift, would now, after the proof they have seen of their value, be happy to purchase them at a liberal price. The furrier, the tanner, the morocco manufacturer, comb maker, &c. &c. are all dealing in materials of the utmost value, when applied to the soil as manure; and the farmer little understands his true interests, who, living in the vicinity of any of these, does not avail himself of these refuse matters to the utmost extent permitted.

Perhaps there is no substance more rich in matters valuable as manures, than the washings and refuse of woolen factories. Chaptal was one of the first to call attention to this matter, and the instances he gave of their fertilizing power were of the most convincing kind. It is but very lately, however, that any attempts have been made in this country to render the refuse of our factories available. All remember, when around every factory and every clothier's shop in the country, piles of refuse wool, clippings, pickings of cards, and sweepings, accumulated in masses, never thought of as of value, but considered as matter of which the owners would most happily be quit. The method of disposing of them, when they could no longer be tolerated, was to throw them into the river; to apply them to the garden or farm was not once thought of. Not long since, in one of our villages, I noticed a garden, the vegetables of which had a luxuriance forming a striking contrast to others near them, and the cause of the difference was asked. "It is all owing to the refuse of that clothier's and carder's shop," was the reply. "I saw in the Cultivator a notice of the value of such manures, and the owner of the shops gladly availed himself of my offer to remove it at my own expense. I gave my garden a good dressing, and as this is the second year, you may judge of the value of the material as a manure. It is probably the last I shall obtain, however," he added, "as the mill

Manure of Wool.

owners, after seeing its effect on my garden, are now as anxious to save this refuse matter as they were before to get rid of it." The oily or sweaty matter on unwashed wool, is a soapy substance having a base of potash, with an excess of oily matter, with slight traces of the carbonate and muriate of potash, all valuable as manures; and as all are easily soluble in water, such water should never be lost. A wool merchant at Montpelier, had his washing house in the midst of a field, the greater part of which he had, by the use of this wash, with which he watered his plants, transformed into a fine garden. The experiments made by Judge Buel and by Mr. Bement, with hog's bristles and horn shavings, were conclusive as to the value of these substances for manures. In short, as all substances of this nature are nearly pure gelatine, with a slight addition of the phosphates of lime, it is evident their decay must furnish an abundant supply of ammonia to plants, and therefore render them valuable as a manure.

There is but one other manure of animal origin to which it will be necessary to allude in this place, and that is urine, or as it is commonly called, liquid manure. Analysis proves that this is a substance peculiarly rich in materials required by plants, and experience enforces the results of analysis; yet not one farmer in a thousand makes an effort to convert this mine of riches to any account, but the whole is most generally lost to him. Dr. Dana gives the following as the constituents of cattle urine, which may stand as the type of all others, though human urine and that of the horse differ from this in the character and quantity of some of the salts contained in them:

Liquid Manure.

Water,	65.
Urea,	5.
Bone dust,	5.
Sal ammoniac and muriate of potass,	15.
Sulphate of potash,	6.
Carbonate of potash and ammonia,	4.
	100.

Compared with cattle dung, it will be seen that while that gives only 2 lbs. of carbonate of ammonia to 100 lbs. of dung, the urine gives 5 lbs. of ammonia in its urea, and nearly three times that amount in the other ammoniacal salts. One-third of urine is composed of salts, whose action on vegetation is of the most energetic and favorable kind; and yet there are thousands who call themselves pretty good farmers, who use all reasonable precaution to preserve

Value of Urine.

the solid parts of their animal manures, that have never made an effort to save that which is of far the greatest value, the liquid part. But it must not be forgotten that soils must contain decayed organic matter or humus for these salts to act upon, otherwise liquid manure or pure urine can do no good. Where the wash of the barnyard and stables is saved, the loss of a large part of the urine is prevented; but when, as is too often the case, this is wholly lost, not only is the urine thrown away, but a large part of the soluble humus of the manure accompanies it. It is an excellent plan, therefore, to have some reservoir for the reception of such liquid matters as would otherwise be lost. If this cannot be done, cover the bottom of your yards with muck, or even common loam, as this will absorb and retain much of the urine and liquid matters of the dung. Experience has demonstrated that a load of loam, saturated with urine, has a more powerful effect on vegetation, than the same quantity of best rotted stable manure. Human urine is richer in salts useful to vegetation than any other, containing, according to Dr. Thompson, in 1000 parts, 42½ lbs. of salts. The slightest attention on the part of the farmer, might prevent the loss of this; and many a load of swamp muck, or loam mixed with gypsum, might, when saturated with urine, be added to his available manures. Liquid manures, or rather urine, differs much in the salts it contains, according as the food is rich or otherwise. "White turneps give a weaker urine than the Swedish, and green grass is worse than either," according to Dr. Dana. Turner and Liebig found that the urine of fattening animals is richer in salts than that of store animals. Indeed, the law so well known with regard to solids, that the richer the food the more valuable the dung, it is probable holds good in regard to the urine also.

Soot.

Soot is a valuable manure, peculiarly rich in humus as well as salts, and in its composition more nearly allied to the solid substance of animals, than any thing else. It contains of humus or geine 30.70, of nitrogen 20., and of salts of lime 25.31 parts in 100. It also abounds in salts of soda, potash and ammonia. According to the analysis of Dr. Dana, 100 lbs. of soot contains as many of the valuable salts as a ton of cow dung, and its nitrogen, compared with that manure, is as 40 to 1. The ordinary farmer can make but little use of soot, as it is not to be had in the country in any considerable quantities; but those in the vicinity of cities may avail themselves of this manure with much profit. For the gardener

or the floriculturist, soot is an excellent manure; but care must be taken not to use it too freely, as we have known tender garden plants at once destroyed by too liberal applications of it, particularly in a dry state. Mixed with water, in the proportion of six quarts of soot to one hogshead of water, it has been found a most efficacious liquid for watering plants, particularly those grown in green houses.

Ashes, leached or otherwise, are of great value as a fertilizer, especially when used on soils that are sandy or light. Unleached, the potash contained goes to form silicate of potash, and gives the supply of silex necessary for the stems of the grasses or corn; and leached, although the potash is the greater part of it separated, the remaining phosphates of lime and magnesia go far to restoring to the fields on which such ashes are strewn, the necessary matters of which previous cropping has deprived them. 100 parts of the ashes of the wheat grain contain 32 parts of soluble, and 44 parts of insoluble phosphates, in all 76 parts. The value of ashes abounding in the required phosphates, when used on grain lands, may be seen at once, as well as the folly of those farmers who waste or sell the ashes produced in their dwellings.

Ashes.

There is no substance, containing no animal or vegetable matter, which exercises a more powerful or beneficial effect than lime, in some one or all of its forms of carbonate, phosphate and sulphate. In the common form in which it is found, that of a carbonate, it acts in two ways, mechanically and chemically. Being less porous than sand, and more so than clay, its mixture improves soils in which either of these prevail; while as an alkaline earth, it acts chemically on such animal or vegetable matters as may exist in the soil. Lime develops its chemical action most fully when in its caustic state, or when by burning, the carbonic acid has been expelled, and the lime rendered what is termed quicklime. In this state, it dissolves such organic matter as may exist in soils, and prepares it for the food of plants. Humus frequently exists in the soil in a solid and insoluble state; lime applied to this, renders it soluble in water, in which form it may be taken up by the roots of plants. A vast deal of needless controversy has been carried on respecting the value of lime as a manure, or the quantity which should be used per acre. By some, it has been extolled as the very highest on the list of effective manures; while others have decried it as of no use whatever; and both have appealed to experiments as establishing their positions. A

Lime.

knowledge of the nature of the action of lime, would have prevented such seeming contradictions. "Lime in excess, forms, from the humus of the soil, an insoluble salt; and may thus, when applied to a soil abounding in salts of lime, or in which it already exists, be productive of injury, whatever may be the vegetable or organic matter of the soil. In this state of excess, lime converts, but at the same time locks up, the humus of the soil; when if applied in the right quantity, it would have been useful. Lime is of no value whatever as a converter, or produces no chemical effect in promoting growth, unless there is organic matter in the soil on which it can act. Lime is most efficient when used on soils full of insoluble humus, such as peaty matter or woody fibre, but which, from the abundance of the tannin principle contained, resist the ordinary processes of decomposition." There would seem to be no difficulty, therefore, in determining whether lime can be used on any given soil to profit. Indeed there are, it is believed, none where it would not be useful, except such as are already supplied with this carbonate, or those which are wholly destitute of vegetable or organic matter. As a general rule, the greater the quantity of humus in a soil, the greater the amount of lime which may be applied with benefit. As long as there is a store of organic matter in the soil, lime, if not in excess, is a valuable manure; but when this is exhausted, the application of lime only increases the sterility by destroying such efforts at vegetation as might in time, aided by light and moisture, partially remove the unproductiveness existing. This fact may serve to explain some of the conflicting statements that have appeared in the agricultural journals of our country, on the use of lime. Where humus is abundant, the quantity that may be safely used, is very great; on soils already poor, a small portion speedily exhausted the remaining powers of the soil. Lime, from its alkaline qualities, acts in neutralizing whatever free acids exist in soils, whether oxalic, phosphoric, malic, or others. It acts also in decomposing some of the earthy or compound salts formed in the soil, and thus renders the geine held by them, available to the plant; but its great and most important use is in converting the insoluble organic matters existing, into soluble ones, and thus directly furnishing an abundant source of nutriment. Carbonate of lime is sometimes used pounded or broken fine; and in this state, its mechanical value is great in stiff or clay soils. Such soils too, usually abound in acids; and these gradually acting on the lime gravel, its chemical effect is slowly but beneficially apparent.

Marls, which exert so powerful an influence on many soils, derive most of their value from the lime they contain; and with few exceptions, their power as fertilizers may be measured by the per cent of lime shown on analysis. There are some marls, however, which are an exception to this rule; their value appearing to depend on other matters than mere lime. Of this kind is the celebrated green sand marl of New-Jersey, and some other points of the Atlantic coast. In this formation, which acts so powerfully as a manure, there is from 6 to 10 per cent of potash; an agent, which, on light soils, is scarcely equaled as a manure. In addition to the lime which marl contains, the influence of the proportions of sand and clay, of which the balance usually consists, must be taken into consideration in determining the value of this substance for particular soils. Thus, on heavy or clay lands, marls abounding in sand will be found preferable to those the base of which is clay; and on light or sandy soils, the latter will be much the most useful, the per cent of lime in both cases being alike. Marl should be spread over the surface, and pulverized by the action of air and frost before it is plowed under. When so treated, experience proves it is a most valuable manure, and a single dressing exerts an influence for many years.

Marl.

Of another salt of lime, the phosphate, notice has been taken when treating of bones as a manure. It will not be amiss, however, to state here, that when any substance is invariably found in any part of a plant or plants, it is right to infer that the perfection of that part of the plant is impossible, unless the substance required is within reach of the plant while growing. Thus the stems of the grasses abound in silex; some of them, the cane for instance, to such a degree as to strike fire with steel, and unless this substance, in the form of silicates, was presented to the plants, they would not be perfect. So it is right to infer that unless soils contain the phosphates, or a supply is furnished for the use of plants, that the cereal grains could never be perfected, as the seeds of these invariably contain large quantities of the phosphates. Phosphates are found more or less in all soils, and when these are deficient, bones form an abundant and accessible source for their supply. It is also found in considerable quantities in all animal and farm yard manures, particularly in the liquid part.

Phosphate of Lime.

Gypsum is the third principal salt of lime which exerts a powerful influence on plants, and is one of the most valuable of all our mine-

ral fertilizers. Much variety of opinion has been entertained re-
Gypsum or Plaster. specting the manner in which it exerts its influence or produces its effects on plants; and these opinions can scarcely be said to be harmonized, even at the present time. Davy was inclined to consider it a direct food for the plant, as it is found, to some extent, in those plants on which it exerts the most power. Chaptal referred its power to its stimulating agency on plants, produced by its action when dissolved in water. Liebig ascribes its value to its giving a fixed condition to the nitrogen or ammonia which is brought into the soil, and which is indispensable for the nutrition of plants. Dana, to the action of the lime and acid of which the gypsum is composed, on the organic matter and silicates of the soil. He says—"It seems almost incredible that so minute a portion of a mineral can act at all; yet how beautifully is the result explained by the principle that plants decompose first this salt; the lime, for plaster is a sulphate of lime, then acts on geine, which is thus rendered soluble; while the acid, the oil of vitriol or sulphuric acid, immediately acts on silicates." It seems very probable that no single one of these suppositions will be found able to account in full for the action of plaster. That of Dr. Dana appears to approach as nearly to a solution as any of them, if we extend his term silicates so as to embrace those combinations formed by the union of the acid of the gypsum with ammonia, after its separation from the lime. If the action of plaster was due to its fixing ammonia alone, then it ought to be equally efficient at all times and places, which it certainly is not; or if it acted directly as nutriment, then its action would be as constant as that of rotted manure or compost, which farmers well know is not the case. Plaster does not act as usefully in the vicinity of the sea, as in the interior; and on heavy wet soils, is scarcely felt at all. Light sandy soils, or loamy ones, are those on which plaster acts the most sensibly; and clover, lucerne, potatoes, cabbages, and the leguminous plants, such as peas, vetches, &c., are the vegetables on which it exerts the most powerful influence. It is much valued as a dressing for wheat, not so much, perhaps, for its direct action on that plant, although that is not trifling, as for its effect in securing and promoting the growth of the clover and other grass seeds, usually, in wheat countries, sown with this crop. So marked is the influence it exerts in this respect, that plaster, clover, and wheat, are always associated in the mind of the most successful wheat growers; and its use is the most extensive in

the best wheat growing districts of our country. In the minds of many, a senseless prejudice has existed against plaster, on the ground that it the more speedily exhausts the soil, and that the heavy crops at first obtained were the price of ruined farms. It is doubtless true that the man who uses plaster on his farm, who takes from his soils all he can get, and returns nothing to them, will soon find his soils worthless enough. He who intends to farm it in this way, should avoid plaster; but let any farmer alternate wheat and clover; husband and apply his manures; feed off his clover in his fields, or to his stock in their stalls; let him not spare his grass seeds in seeding, or his plaster in dressing, and his farm will never run down. Such men need not fear plaster.

Common salt is an active and valuable manure, and has been used successfully as such, in all parts of the world where it can readily be obtained. In England, the pickings or impure salt is used for this purpose; and many experiments are on record to show that the effect is most marked and decisive. The following is one of a series of experiments instituted by Mr. Sinclair, to test the value of salt as a manure. The soil was light and gravelly.

Salt.

No. 1. Soil without any manure for 4 years. Produce per acre,..... 13 bushels 26 lbs.
2. Soil manured with stable dung to the previous crop (potatoes,). 26 do. 52 do.
3. Soil with 5 bush. of salt per acre, and no other manure for 4 years, 26 do. 12 do.

In the opinion of Mr. Sinclair, the effect of salt as a manure was to lessen the produce of straw as compared with other manures, and to increase the weight of the grain.

Prof. Johnston has done more than any other person to extend the use of salt as a manure, by giving to the world his excellent Essay on salt used on soils, and the mass of experiments he has recorded. It appears that salt in small proportions, promotes the decomposition of animal and vegetable substances; that it destroys vermin and kills weeds; that it is a direct constituent of some plants, and therefore necessary to their perfection; that all cultivated plants of marine origin contain it, asparagus for instance; and that all such succeed better when watered with salt water, than when deprived of it; that salt preserves vegetables from injury by sudden transitions in temperature, salted soils not freezing as readily as those to which salt has not been applied; and that it renders the earth more capable of absorbing the moisture of the atmosphere. When salt is applied as a manure, it may be used in quantities from six to fifteen bushels per acre; although some have gone as high as 50 bushels. Farmers, however,

should be cautious how they venture on excessive doses, as an extravagant one could scarcely fail of being fatal to any crop. Legrand, in his experiments with salt, found that it gradually improved the crop of barley until sixteen bushels per acre was reached, when it gradually diminished until the amount of forty bushels per acre was reached, when vegetation was destroyed. Salt combined with manure, has proved very efficient; and in the Woburn experiments, the wheat so treated exceeded all others. The most favorable proportions were found to be 45 tons of dung, and five and a half bushels of salt per acre; the manure plowed in, the salt sown with the seed. The experiments that have been made, would seem to indicate that a preferable mode of using salt, in most cases, would be to sow it on the land some weeks before the seed is to be put in. In this case, where lime exists in the soil, a chemical change takes place, at least partially, and muriate of lime and soda is the result. Such a change would seem to be most favorable to vegetation.

Salt and lime, artificially mixed as a manure, promises to be a valuable aid to the farmer in those positions where the soil abounds with insoluble silicates or geine, and where other manures necessary to produce decomposition or fermentation are not at hand. Prof. Johnston recommends a mixture of two parts of lime and one part of salt, the mixture to remain incorporated in a shady place, or covered with sods two or three months before using. Salt and lime should not be used immediately after mixing, as bad results are apt to ensue; but after being well mixed in a dry state and lying as directed, it may be applied at the rate of from thirty to sixty bushels per acre, either before or at the time of sowing. Mixed with soot, salt acts with great power on roots. Mr. Sinclair mixed six and a half bushels of soot with the same quantity of salt, and used the mixture on lands sowed to carrots. The result was, that unmanured land gave twenty-three tons of roots per acre, and the manured yielded forty tons per acre; and Mr. Cartwright found that where unmanured soil gave 157 bushels of potatoes per acre, 30 bushels of soot and six of salt, made it produce 240 bushels per acre. Dr. Dana furnishes so beautiful an explanation of the manner in which this manure acts, that it deserves a place entire: "By mixing quicklime with common salt, its soda is let loose, the acid combines with the lime, forming a soluble salt of lime, and so long as the soda remains caustic, it has no effect on the muriate of lime, but as soon as the soda becomes mild or carbonated, decompo-

Salt and Lime.

sition of the muriate of lime is produced, and the common salt regenerated. Commencing then with quicklime and salt, we pass to a soluble salt of lime and caustic soda, and from that to mild soda, and to carbonate of lime and the original salt. If these various changes take place in the midst of peat or geine, it is evident that the caustic soda acts upon the geine, and also evolves ammonia from that substance; secondly, that the muriate of lime, in its finely soluble state, insinuates itself among the particles of the geine; that the soda is also equally diffused, and that when the soda becomes carbonated, it produces an almost impalpable carbonate of lime throughout the whole mass, which, by its equal diffusion through the soil with the geine, acts upon the silicates, as has been heretofore explained." To produce these effects, Dr. D. directs to take one bushel of salt and two bushels of lime; to make the salt into strong brine, and with it slack the lime. Mix both well together, and let them remain ten days; then let them be well mixed with three cords of peat, shoveled well over for about six weeks, when it may be used. A quantity of salt sufficient to destroy all vegetation, may be applied to a soil with safety when a few months are to elapse before the crop is to be put on; as the chemical changes which take place, partially neutralize its effect during this time. A small quantity mixed with the soil in each hill of corn, has been found to protect it from the wire worm and the cut worm; indeed there is no substance that insects of all kinds more dread than salt. It is probable, therefore, that further experiments will show that not the least value of salt is to be found in its preventive properties against these depredators.

Charcoal is a valuable manure, and applied directly to the soil in a pulverized state, produces excellent effects. It acts by rendering the soil more permeable to atmospheric air, by absorbing and retaining for the use of plants the ammonia of the atmosphere, or such as falls in showers; by rendering soils with which it is incorporated warmer; and by furnishing a constant supply of carbonic gas to growing plants. The great productiveness of what are called coal hearths, or those places on which charcoal has been burned, has long been a common remark, but this has been commonly attributed to the ashes, burned earth, &c. on such spots, rather than the coal. The use of coal alone, however, shows that though these other matters are not without their value, the great additional fertility of these places is mostly owing to the coal. Immense quantities of

Charcoal.

this substance are wasted in the vicinity of forges, furnaces, smiths' shops, &c. which would be of great value, were farmers to collect such refuse or dust coal, and apply them to their farms. On heavy soils in Europe, it has long been customary to pare the surface, and burn the turf so collected, taking care to incorporate as much of the clay soil as will consist with the ignition of the turf. This burnt mass of clay and ashes is scattered over the ground, and is found to make a valuable dressing on such soils.

It is impossible to particularize all substances that may be used as manure. It is evident, from the definition first given, that they would embrace all animal matters without exception; all excrementitious secretions of animals, and all vegetable ingredients in one form or another, together with a few of the mineral salts, such as the alkalies, silicates, &c. Thus, oil-cake, bran, yeast, brewers' grains, putrid meat, in short any substance that can be classed under the above divisions of matter, may be useful as manures, and this fact should induce great caution in their preservation and application. Whatever may be the present condition of a particle of matter, if it has ever formed a part of an organic body, it can again become such under circumstances favorable to such a condition.

Other Manures.

In the preceding rapid sketch of the principal substances valuable as manures, the best methods of preparation and use have also, to a considerable extent, been given. All then that would now seem necessary for the purpose of this Essay, is a condensed view of the principles laid down, with such incidental topics as have been passed over, but of which a notice appears necessary.

As the common farmer must always rely on stable or farmyard manure, as his principal means of fertilization and renovation of his soils, it is to these, to their preparation and use, that his attention must be principally directed. It is an important question for him to decide, whether he should apply his manure in a long state, that is, apply it fresh from his stables and yards before undergoing decomposition, or let it remain until the litter and straw has fermented and become rotten, before using it. Some remarks on this topic have been made in the preceding pages, when treating of such manures, but its importance will justify their extension in this place. It has been said that rotted manure contains more geine or humus, weight for weight, than unrotted or fresh manure. This is probable; but to make this test decisive, equal weights

Preparation and use of stable manures.

of dung should be taken while fresh, one analyzed at the time, and the other when fermented and rotted. This course, it is believed, would show a result in favor of the unrotted. There can be no doubt, however, that straw, stable litter, &c. should be partially fermented before using, and the moisture necessary for the process should, if possible, be the urine of the animals or the drainings of the yards. Straw, in dung intended for a particular crop, is of little use unless the fermentation has far progressed; and a distinguished German farmer has asserted that he considered straw as of no consequence in manure, except as acting the part of a sponge to retain the fluid parts of the animal manures. There are some exceptions to this remark, as when straw is applied to heavy clay grounds before rotting. In this case, when plowed under, it gives a degree of porosity to the soil, absorbs part of the moisture, and acts the part of a valuable amender, while it is eventually converted into a manure, or a source of carbonic gas. Where the unfermented dung of the yard or stable is applied to the soil, it should be covered at once by the plow, that the gases liberated in fermentation may not be lost, and that the moisture necessary for fermentation may be secured. When rotted or fermented, the covering is not of so much consequence, and it may, without loss, be scattered on the surface and mixed with it. If used without fermenting, it should be applied to hoed or summer crops, such as corn or roots, as these are in that state while the manure is at the height of its fermentation, when forcing manures are the most useful; but if applied to the smaller grains, they are most active when matter for the perfection of the seed, not the enlargement of the straw, is most needed, and the last is increased at the expense of the first. Taking all these circumstances into consideration, there can be little question that the most economical way of making and using manures, is to convert the stable and barnyard manure into compost, by the addition of peat, swamp muck, cleansing of ditches, wash of roads, leached ashes, or even common loam or earth, taking care, when the manure is wanted for heavy soils, that the earth used in the compost should be as light or sandy as may be; and where the soil is light, that the compost earth should be marly clay. Into such a compost heap, all weeds, straw, litter, animal matter of all kinds, night soil, &c. &c., may be thrown, and upon it all the wash of the yards and urine of the stables may be poured; and if the animal and vegetable matters as they accumulate, are kept covered and moist, the

fermentation will go on successfully; the alkalies and salts of the animal matters will act on the vegetable part and saturate the earths used, and the whole will be converted into manure of the most valuable quality. The labor of preparing compost, it is true, is much greater than merely drawing it from the yard, but the quantity is so much increased, and the quality so much improved, that it is the most economical in the end. The only method that can compare with it, is to place these matters over the yard, and let them be composted or fermented in that place; but there will always be great waste in this way; and where turf or vegetable mold is used for composting with the animal manure, the compost heaps can frequently be made where they are to be used, and the labor of drawing materials greatly lessened. Bommer's patent manure is only compost made in a scientific and accurate manner, every part of the process so managed as to produce a perfect fermentation, without the loss of any of the valuable parts of the constituents used. From a knowledge of the processes employed by him, we are able to say that where his directions are followed, a powerful and valuable manure cannot fail to be produced. The fundamental principle upon which composts have been made, is that of impregnating the earths used in the process with the soluble salts and the gases, which, in the ordinary methods of rotting, are wholly or partially lost to the farmer. The discussions which have been carried on, as to the propriety or impropriety of burying manures in the soil, have arisen from not stating the kind of manure to be used. The solid and soluble parts of manures have a tendency to sink into the soil; the gases evolved in fermentation a tendency to rise. The true principle, then, is to bury the unfermented matters no deeper than is necessary to secure the moisture required for fermentation, while the fermented or decomposed dung, having no fertilizing gases to lose, may be mixed at once with the surface earth. Some of the greatest crops of Indian corn ever grown in the United States, have been produced by placing a heavy dressing of unfermented manure on turf land, and turning it under with the plow. The surface is then rolled to press the sod close upon the manure, and afterwards harrowed, to loosen the earth for the reception of the seed. Into each hill, a small portion of fully rotted manure or compost is put at planting. This promotes germination, gives the young plant a vigorous start, and by the time the roots have

Preparation and use of compost.

penetrated beyond this, active fermentation has commenced in the long manure, and thus fertilizing matters are furnished in the greatest abundance when most wanted by the plant.

Of the mineral manures used, lime, as has been already stated, is the most important, and under all its forms, is extensively used in Europe and in this country. The German farmers of Lancaster, Chester, and the adjoining counties of Pennsylvania, use lime more extensively than in any other part of this country. Considerable discussion has been had at different times as to the comparative value of limes that contain magnesia, or such as are free from it; but the value of lime as a dressing for soils, seems to be every where conceded in those districts where it has been used. It appears as the result of experience, that lime produces the best effect on what are called stiff loams, or loams inclining to clay, and in which a good proportion of decayed organic matter is found. It is found, too, that it operates more favorably on soils natural to oak and its kindred trees, such as walnut, poplar, &c. than on those where the beech, elm and maple constitute the principal timber. It is singular that the richest limestone lands, as they are called from being based on this rock, are frequently those on which heavy dressings of lime operate like a charm. If used as a top dressing, lime is usually applied to the sod in the fall; but the practice most approved, is to lime the corn ground in the spring, on the inverted sod. Manure is applied to the wheat crop after lime. The quantity of lime used varies much. There is no doubt it has sometimes been used in excessive quantities; and when used on soils nearly destitute of vegetable matter, can produce no good effect. On a medium soil, fifty bushels per acre may be considered an abundant dressing; but three or four times that quantity is sometimes used. The best method of using lime, is to take it from the kiln, unslacked, and deposit it in heaps in the field where it is to be used, not more than three or four bushels in a place; and either slack it by pouring water over it, or, which is better, by covering each pile with earth, and letting them slack by the moisture thus furnished. When sufficiently fine, the earth and the lime are mixed by shoveling over, and the mass is then scattered over the land to be dressed. The soil should be well harrowed after the application of lime, to incorporate it more completely with the surface earth.

Use of lime.

It is obvious that the manuring of a farm should only be limited by the ability of the owner. On a plentiful supply of manures, is depending the fertility of his soils, the amount of his crops, and consequently the extent to which his labor is rewarded. There is no expenditure on a farm, so safe as that for manure; and the labor required to increase it, is never labor lost; at least, if directed by an ordinary share of agricultural knowledge and skill. Every source of supply should be made available; nothing capable of fertilizing should be lost. The farmer who takes from his soil more than he returns to it, is surely impoverishing it; and if he escapes such a calamity himself, he leaves to his successors a worn out farm. If he returns as much as he receives, his farm will retain its original fertility only; but the true farmer will scarcely be content with this. To increase its fertility, and the amount and quality of the crop taken from the soil, should be the aim of the husbandman. This done, his labor is lessened, his profits are greater, his farm is worth more; nor must the pleasure arising from beautiful fields, golden harvests, fine animals, and accumulating prosperity, be omitted in making up our estimate of the advantages of successful culture. Manure may be a homely subject, but on its preparation and use every thing is depending. Without it, the deep green of our pastures, the golden yellow of our corn fields, and the fine beef and white loaf of our tables could not exist. To the farmer, manure must be the first thing, and it must be the last thing; with it, he can do every thing; without it, nothing.

Necessity of Manuring.

ON FARM MANAGEMENT.

BY WILLIS GAYLORD, OF OTISCO, N. Y.

There are very few individuals, whether farmers or otherwise, from whom expressions of admiration will not be elicited while passing or viewing a well managed farm. There is something in good husbandry that commends itself to the approval of all, as indicating good sense, good taste, and love of order. It indicates habits of correct thinking, sound moral feelings, good business habits, and a man in whom confidence may be placed by his fellow men. In addition to this, it is almost inseparably connected with thrift; and

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the man who manages his farm well, can scarcely fail to do well in the world. It is true the reward of labor must in a great measure be dependant on circumstances, such as the quality of the soil or ease of culture, suitableness for particular crops, position in regard to markets, &c., but wherever the good farm manager is placed, improvement and eventual profit follow in his footsteps. The well managed farm may not be productive of as great profit in Missouri or Iowa, as in the vicinity of New-York or Philadelphia; but compared with those around it, no matter where it may be, a striking advantage will always be found in its favor. To manage a farm well, requires intelligence, forethought, an acquaintance with the various methods of agriculture; well directed economy, not stinted or parsimonious; and above all, persevering industry. It is evident, therefore, that good husbandry does not come by instinct, but must result from experience, observation, reflection, and a knowledge of what has been done by others. The necessity of this knowledge, will be seen at once, when we remember that the inquirer after agricultural truth may spend a life in experiments, and at the same time not advance a single step beyond the point reached by hundreds before him; whereas, had he been acquainted with their labors, that point would have been his starting place; and his advance in that case, a decided gain. To point out some of the things likely to interest and aid the farmer who aspires to manage his farm well, will be the object of this Essay.

Soils.

The soils most suitable for farming purposes, are those in which sand preponderates, and which, when combined with decayed vegetable and animal matters, form a friable loam. Such are proper for most crops; are cultivated with ease, and kept fertile with little difficulty. Heavy soils, or those in which clay preponderates, are frequently rich and productive, particularly for wheat and clover, if the subsoil is of the right character, or sufficiently porous to prevent all stagnant water about the roots of plants. But whatever may be the character of the surface soil, whether light or heavy, it cannot be fit for the culture of crops, so long as a retentive and impenetrable subsoil prevents the escape of surface or spring water, and exposes the roots of the plants to the poisonous influence of water having little or no motion. The first step, therefore, in the management of a farm, is to fit it for the production of crops. This is done, if too light, by the addition of clay marls, or even common clay; if too heavy or wet, by

thorough subsoil draining, one of the most efficacious converters of soil yet devised.* On light soils, the use of the roller, combined with the application of manures, will usually correct the evils that arise from that source; but where the mechanical texture of the earth allows too easy an escape of water, clayey earths must be resorted to. Pond mud, swamp muck, or the earth from ditches, are here particularly useful.† Experience proves that there is no soil mechanically

* The beneficial effects of draining may be mainly attributed to two things. It renders the soil porous, and it gives to it a higher temperature. The capacity of a soil to retain water, is mostly depending on its clay and humus. When water is given to a soil, all the particles of these substances become saturated, or filled; and this is the condition of good soil. If more water is added, it must occupy the space between these particles and the other earthy particles, and thus the air is excluded, or the soil loses its porosity, so essential to fertility. Draining removes this excess of water, and restores porousness to the soil. In a series of experiments made by Dr. Madden, he found that in soils of precisely the same quality, and the same external temperature, but one drained, or in a proper state of moisture for vegetation, and the other filled with water, there was a difference in temperature of 6½ degrees in favor of the drained soil. The experience of every farmer who has tried draining, will confirm these experiments.

For practical illustration, the writer may be permitted to refer to the farm of E. Marks, Esq., which received the first premium for farms, offered by the Onondaga Agricultural Society in 1842. A large portion of this farm was naturally heavy land, level, with a retentive subsoil, and black muck surface. Part of it was so swampy, that previous to his taking possession, no attempt had been made to cultivate it. The first operation of Mr. M., was to thoroughly drain this wet and useless part of his farm. This was done by a skilfully constructed network of under drains, which have been gradually extended until a large portion of his heavy soils have been drained, and with the best results, as heavy crops of roots, corn, and wheat, are now taken from those parts where before nothing but coarse natural grasses could be made to grow. [*See Cultivator, Vol.* viii., *page* 83.]

† There is no more important or decisive character of good or bad soils, than their capacity to absorb or retain water, as this in a great degree influences their fertility. The following, collated from Prof. Schubler's numerous experiments and tables, will show some of the most important differences in the most common earths, in this respect; as also in that of retaining heat:

Kind of Earth.	Weight of a cubic foot:		Water evaporated in 4 days. In grs.	Diminut'n in volume in 1000 pts. by drying.	Water absorbed by 50 squ're inches of surface of dry earth in 72 hours; w't in grains.	Time required by 30 cubic inches of earth at 144° to cool to 70°, the surrounding temperature at 61°, in hours and minutes.
	Dry.	Wet.				
Calcareous sand,.....	113.6	141.3	146	no change	3	8 hrs. 30 min.
Silicious sand,.....	111.3	136.1	160	"	0	3 " 20 "
Gypsum powder,.....	91.9	127.6	136	.....	1	2 " 34 "
Sandy clay,.....	97.8	129.7	105	60	28	2 " 41 "
Loamy clay,.....	88.5	124.1	110	89	35	2 " 30 "
Brick, or stiff clay,.....	80.0	119.6	95	114	41	2 " 24 "
Pure grey clay,.....	75.2	115.8	100	183	49	2 " 19 "
Garden mold,.....	68.7	102.7	121	149	52	2 " 16 "
Arable soil,.....	84.5	119.1	131	120	23	2 " 27 "
Slaty marl,.....	112.0	140.3	130	35	33	3 " 26 "

suited for cultivation, however heavy it may naturally be, which cannot be rendered fertile, by freeing it from all unnecessary moisture; and of all the various processes which an improved husbandry has introduced into the management of the farm, there is none more important than draining.

Size of Farms.

An important matter in farm management is the size of the farm. It cannot be denied that the tendency in this country is to large farms, rather than small ones; not that large farms may not be as well cultivated as smaller ones, but that the present system here prevents the application of capital, (labor, &c.) which is necessary to render farming profitable. The consequence is, that the labor, the manures, and the seeds of the farmer, are spread over too much surface, and the land occupied is but half tilled, manured or seeded.* How much land an able bodied man can properly cultivate, is a question rather difficult to answer. One thing, however, is certain, that

* It does not seem to be generally understood what a great amount of produce can be taken from a few acres of well cultivated land. I have selected from a large number of instances now before me, a few which will place this matter in a clear light. In none of these cases was there anything which may not be equaled on any well constituted and well cultivated soil. David Wedgewood, Esq. of Greenland, New-Hampshire, gathered in the fall of 1842, the following products from 1¼ acres of land:

274 bushels of potatoes.	86½ bushels of corn.
19 " " apples.	5½ " " beans.
6 " " green peas.	5 " " currants.
4 " " red cherries.	4 " " rare ripe peaches.

The value of these products, at the average market price, was $120.

Another instanse is, that of the Model Farm of Glasnevin, near Dublin, Ireland, of 52 acres. On it are kept 22 head of cattle, and 3 horses. It supplies, on an average, 90 persons during the year, with farm produce, grain, milk, butter, vegetables, potatoes, meat, besides a number of private families. A large quantity of grain, and various vegetables are carried to market. The manager realizes a handsome sum, after paying various rents, taxes, &c., to the amount of £400.

In 1837, Jonathan Jenkins of Kent, Delaware, took from 38 acres divided into 5 fields, the following products:

250 bushels of oats.	15 tons of wheat and oat straw.
150 " " winter wheat.	140 bushels of Irish potatoes.
46 " " spring wheat.	15 " " sweet potatoes.
325 " " yellow corn.	40 " " turneps.
35 tons of clover hay.	Pasture for 4 cows.

At the high prices of that year, these products were worth 1,692 dollars. This was originally a very poor, light soil; but labor and manure had brought it to such a state that the annual clear profit on the 38 acres, was equal to the interest on $20,000.

Mr. Hoyt of Deerfield, Mass., in 1833, took the following produce from 3½ acres of land:

Hay, 3½ tons,	$42 00	Corn, 120 bushels,	$96 00
Wheat, 11 bushels,	16 50	Potatoes, 117 "	23 40
Clover, 1 ton,	4 00	Apples, 60 "	7 50
Corn fodder,	10 00	Pumpkins, 1 cart load,	2 00

The value of the product at the then market price it will be seen, was $201.40.

the most highly cultivated farms, and those that yield the greatest profit on the capital invested, belong to those called small; that is, those ranging from forty to sixty acres each. Considerable observation, and an experience of some thirty years, has convinced us that unless under very favorable circumstances, thirty acres of land in cultivation will furnish employment to one man, and one boy of an age sufficient to drive a team for plowing, and unless a suitable portion of this is in meadow and pasture, even this thirty acres will not be properly tilled. Where sixty acres are in cultivation, two men and two boys, or three men, will find abundant employment; yet how often is the labor of three men spread over from 100 to 150 acres, and the result is such as might be readily anticipated. In England, it is estimated that one span of horses will do the work of 50 acres of tillage land, but it must be remembered that the plow can be kept moving there the whole year, with the exception perhaps of a month or two of the most severe weather—and one hand, called the plowman, is exclusively devoted to this business. Here, with our limited time for the use of the plow, it is believed one team to 30 acres would be nearer the truth than the foreign estimate; certainly would this be the case where the team was used, as is generally the case in this country, for both the plow and the road.

Division of Farms.

The proper division of farms, with reference to cultivation, is an important item in farm management, and a proper rotation of crops is almost impossible unless attention is in the first place paid to this point. In the remaks to be made, it will be supposed that the farm contains one hundred acres, of which eighty are under culture, leaving twenty acres for woodland, buildings, gardens, &c. This eighty acres is either naturally, or has been artificially, brought into that condition which renders it suitable for any of the cultivated crops. As a general rule, it may be stated that a soil which will produce good wheat and clover, will be fit for any other crop of grain or roots, and the first thing to be done is to bring it into that condition. This course has been already explained; and this being done, the division into fields of proper size, by good substantial fences, must be attended to. The objection to large fields is, that they are not favorable to rotation; that to small ones is, that too much land is occupied by fences. Where the animals of a farm are only cattle and horses, and these kept in stalls throughout the year, as they are in many parts of Belgium, France and Holland, fences

may be dispensed with, and the only divisions those made by the crops themselves. But the mixed husbandry of this country, which is found the safest for our farmers, prevents the adoption of this system here, and renders permanent divisions of farms necessary. Ten acres is found to make a very suitable sized field, and the eighty acres under cultivation will make eight fields of this size. If the soil is properly constituted, any one of these lots may be made to produce either wheat, corn, barley, oats, rye, peas or roots, at the pleasure of the manager or the wants of the farm. A proper rotation of these and other crops, however, is demanded of every farmer who would keep up the fertility of his soils, and not suffer the desire of present profit to lead to future exhaustion. It is much easier by skilful management, to keep up or add to the fertility of a soil, than to restore an exhausted one to productiveness.

Rotation of crops.

The necessity of a rotation of crops, appears to exist in the nature of plants themselves, some preferring some one of the materials or elements of the soil, and being unable to perfect themselves where this element is not present; while by others, this substance is mostly or entirely rejected. Thus the silicates are indispensable to the growth of the grasses, and lime to the perfection of wheat; while but a minute portion of the former is required for the soft coated plants, and of lime but little is wanted for the production of the bulbous roots. The application of manures too, in their result on crops, would lead to the propriety of rotation. Fresh or barn yard manures, do not seem proper for direct application to grain crops. They require to have their first or fermentative action given to crops in which the rapid growth of the plant is of more consequence at first, than the perfecting of the seeds, of which nature are corn and roots.*

* Some plants contain more azote or nitrogen than others, and in some this substance is contained in the roots, and in others in the seeds. Thus, wheat and peas contain far more azote than turneps or potatoes. To increase the supply of starch in a plant, the quantity of azotized manure must be increased, and it must be present at the time when most required by the plant. Roots in general have a large system of leaves, do not contain a large portion of azote, and rely for their development mainly on a large extent of leaf surface. The great object to be aimed at, then, in the manuring of roots, is to furnish the means of rapid growth at first, as on this the amount of crop will be depending. This is more the case with the turnep and carrot than the potatoe, as the former are not required to produce seed, while the tuber of the potatoe is in one sense a seed, and consequently requires azotized materials for its perfection. On the contrary, the grains are cultivated for their seed; and as this is the most highly azotized portion, they require not so much manure to act quickly in developing leaves, as one that will furnish supplies of azote to the last, or during the formation of the grain. Hence it is, that while fresh manures are the best for roots, corn, &c., or those plants which have large leaves, thoroughly decomposed ones are to be preferred for the cerealia. [*See Madden on Manures.*]

For the perfection of the seeds of the small grain plants, it appears that manure produces the best effect when it has had time to decompose, and the salts it contains opportunity for forming new combinations necessary to the new plant. But whatever theory may be adopted to explain the propriety of rotation, the existence of the necessity will not be denied by any farmer who has paid attention to the effects resulting from a succession of the same crops on the same soil, or a rotation of crops. The methods and the courses of rotation are very varied; but they should be made and pursued with reference to a definite object. If grain is the principal object, then a larger portion of the farm each year must be embraced in that culture; if cattle husbandry, then more must be added to the meadow and pasture. In the farm under supposition, grain will be the principal object; one-fourth part, or twenty acres, being annually in wheat, and the rotation will be arranged accordingly.

PLAN OF ROTATION ON EIGHTY ACRES.

Field.	First year.	Second year.	Third year.	Fourth year.
No. 1....	Wheat with Clover seed.....	Pasture.....	Meadow.	Fallow.
2....	Pasture.....	Meadow.....	Fallow.	Wheat.
3....	Meadow.	Fallow.....	Wheat.	Oats and barley with clover.
4....	Fallow.	Wheat.	Oats &c. with clover.	Pasture.
5....	Wheat.	Oats &c. with clover.	Pasture.....	Corn and roots with manure.
6....	Oats and barley with clover seed.	Pasture.....	Corn & roots with manure.	Wheat with clover seed.
7....	Pasture.	Corn, roots, with manure.	Wheat with clover seed	Pasture.
8....	Corn & roots with manure.	Wheat with clover seed.	Pasture.....	Meadow.

The nature of this rotation will be seen at a glance. Of the eighty acres, twenty each year are in wheat, twenty in pasture, ten in meadow, ten in summer fallow, ten in oats and barley, and ten in corn and roots. The manure is given to the corn and root crop, which would manure every field once in eight years. This, although better than is done on most farms, is not enough; and exertion should be made to give a heavy compost dressing to the meadow each year; or if deemed preferable, to the oat and barley field. It will be seen that to give twenty acres of wheat, ten acres of it follow the corn and root crop. If the corn is of the right kind, planted early and tended properly, there will be no difficulty in removing it from the ground by the middle of September or before, and having the wheat sown by the

20th of the same month. In this country, the ground can rarely have a crop of roots taken from it, and be sown to wheat the same season with much prospect of success. That part of the corn field, therefore, occupied by roots, (potatoes, turneps, carrots, beets, &c.) be it three or be it five acres, may be sown with spring wheat and grass or clover seeds, as the other part, so as to give the annual twenty acres of wheat, and not break in upon the regular course of rotation. Ten acres in winter and spring wheat, and ten acres in oats and barley, are yearly seeded to grass. Clover is preferred for this purpose, as a better renovator of the soil than almost any other plant, and furnishing more hay or pasture per acre than any other grasses do. There should be a mixture of white clover with the other seeds, as this will give a thicker bottom, and add greatly to the value of the pasture or the hay. In all cases where grass seeds are sown, a dressing of plaster, two bushels to the acre, must be given, soon after the plants make their appearance. On the clover, it will act like a charm, giving the young plants a vigor which enables them generally to resist drouth and the effects of the first winter on the roots. The stock kept on the farm, will be two span of horses, four cows to furnish milk and butter, and one hundred sheep. Half a dozen good pigs are fattened annually. Sheep, on a wheat growing farm, are preferred to other stock, as scattering their manure more liberally and equally, and trampling down and cutting up with their hoofs more completely that part of the clover which grows coarse, and is unpalatable to stock generally; thus rendering its decomposition more certain and rapid. Twenty acres of pasture will furnish a supply for this quantity of stock; and the hay, straw, and roots, an abundant supply for winter. Where the soil is clean and free from weeds, the summer fallow may, when the land is brought in good condition, be dispensed with, and some valuable crop be substituted. As this crop is to precede wheat, the pea will be found an excellent substitute for a fallow; the clover seed being turned over in the spring, rolled, harrowed, and the peas sown upon it. When the peas are removed, a single plowing, well executed, will fit the ground for the reception of wheat. There are few farms, however, in which a fallow as a cleaner of the soil, is not required in such a rotation.

Course of Cropping.

In this course of cropping, each field is in clover one-half of the time; receives one dressing of manure and two dressings of plaster during the rotation, or indeed more of each if the farmer chooses, and has only one crop of each kind, wheat excepted,

on it during the eight years.* In England, the following course is practiced with much success, and with some variation might do well here. First year turneps; second, barley; third and fourth, clover; fifth, wheat; sixth, beans and peas; seventh, wheat. For the turneps and the beans substitutes would have to be provided. Corn might take the place of the first, and peas that of the last. In the wheat growing districts of this country, the rotation of crops is very simple. It is first wheat with clover seed; second, meadow or pasture; third, meadow or pasture plowed in July; fourth year wheat. Sometimes the plowing takes place one year earlier, making a wheat crop every third year. But this cannot be recommended, as such a course cannot fail to exhaust the soil, however fertile in the outset. It is well known that Belgium exceeds all other countries in its products on a given quantity of land. The following, from the excellent work on Flemish Husbandry, will show at once a favorite course of rotation, and the manner in which the Flemish farmer manures his lands. This was naturally a stiff clay loam, but by cultivation and manuring it has been converted into a soil, fine, mellow and brown, resembling the best garden mold:

1. Potatoes, with twenty tons of dung per acre.
2. Wheat, with three and a half tons, and fifty barrels of urine.
3. Flax, with twelve tons of dung, fifty barrels urine, and five cwt. rape [oil] cake.
4. Clover, with twenty bushels wood ashes.
5. Rye, with eight tons dung, fifty barrels urine.
6. Oats, with fifty barrels urine.
7. Buckwheat, no manure.

With us, the urine so liberally and profitably used by the Flemish husbandman, is mostly if not wholly lost; and though, as a stimulant, its powers are mostly exerted on the first crop, its effects on the

* The following course is a favorite one in some of the best cultivated districts of Pennsylvania; corn, then oats, then wheat, then rye, then clover and timothy. One oat field and one clover field, fallowed for wheat. Manure is applied to the wheat; lime and plaster are also used freely. The crops of two farmers in the vicinity of Lancaster, will illustrate this course; the first is of 40, and the second of 200 acres:

No. 1.		No. 2.	
Acres.	Produce.	Acres.	Produce.
5 Corn,	300 bushels.	30 Corn,	1,500 bushels.
10 Wheat,	340 do	40 Wheat,	1,200 do
5 Oats,	300 do	30 Oats,	1,500 do
5 Rye,	100 do	60 Hay,	90 tons.
10 Hay,	30 tons.	40 pasture.	
5 pasture.			

[*See Mr. Miller's Report.*]

soil, as an alterative, are very favorable. The course of crops would not answer here, such is the difference of our seasons; but it is believed a profitable lesson might be derived by the American farmer, from studying the Flemish system of manuring.

Farm Implements.

It is perfectly idle for any individual to undertake the management of a farm, without a proper supply of implements with which to perform the labor of the farm. There should not only be enough of them, but they should also be of the best kind, for experience shows that there is a gain every way, in using only the best implements. It is easier for the animal, for the man; the work is better done, and as a necessary consequence the crops are better and more valuable. The number of each implement will of course depend on the size of the farm, and the teams and laborers employed. Of all agricultural implements the plow is at the head, and in none has such decided improvements been made within a few years, as in this. Much controversy has been had as to the best plow of the two principal kinds, the one that lays the furrow flat, or the one that lays it lapping on the last. This matter may be said to be wholly depending on the nature of the soil. If this is light or sandy, the furrow should be laid flat; if heavy, or inclining to consolidation, the furrow should be lapped; and the reasons are self-evident. On the light soils, there is no danger of surface water; and the more compact a sandy surface can be made by rolling, treading of animals, or otherwise, the better it is for the crop; while on a heavy or clay soil, it is directly the reverse in all things. This should be left as porous and light as possible; and lapping the furrows does much to accomplish this. In selecting plows, then, the farmer must be governed by the nature of his soil. In only one instance is a flat furrow admissible on heavy land; it is when the turf is manured before it is turned over; and where a crop of corn or spring grain with grass seeds is to immediately follow the operation. In this case, the turf should be laid flat. There are few farms on which there is not sufficient variation in the soil to render one or more of each of these plows necessary in their management. In addition to these, a subsoil plow may be deemed indispensable, where a thorough system of farm management is intended. Although not in as general use as it should be, the subsoil plow is deservedly winning its way into favor with the agricultural public; and as an implement for changing the character of heavy dense soils, it certainly is unrivaled. Perhaps it may be well to

place together the implements required on a farm, remarking that the statement will be for one team and one man, unless the contrary is stated. The prices are affixed, but this can only be considered an approximation, as prices vary much with the kind and quality of the implement:

1 Plow for laying flat furrows,.....	$12 00	
1 Plow for lapping furrows,.....	12 00	
1 Subsoil plow,.....	12 00	for the farm.
1 Cultivator,.....	5 00	"
1 Drill barrow,.....	8 00	"
1 Roller,.....	5 00	"
1 Hand hoe—steel plate,.....	0 75	
1 Farm wagon with hay rack, &c.....	100 00	"
1 One horse cart, with racks, &c.....	50 00	"
1 Set farm harness for horses,.....	30 00	"
1 Chaff or straw-cutter, ...	30 00	"
1 Shovel and one spade,.....	3 00	
1 Dung fork and 1 hay fork—both steel,	2 00	
1 Double harrow,.....	10 00	
1 Grain cradle,.....	4 00	
1 Scythe and snathe,.....	2 00	
1 Fanning mill,.....	20 00	for the farm.
1 Hand cart or wheel-barrow, from $3 to	10 00	"
1 Mott's furnace and fixtures,.....	50 00	"

We have not included a threshing machine, as it is doubtless better to employ an ambulatory or moveable one, where they can be had, than to incur the expense of purchase, fixtures, &c., on an ordinary farm. There will also be a multitude of minor articles to be used about the farm, house, barn, stables, &c., the whole of which cannot be estimated at a less expense than one hundred dollars. The expenses, therefore, of implements on a farm of 100 acres, including only the most common and indispensable ones, will not fall short of $500; and they may easily be made to exceed a much larger sum than this.

Manures have already been spoken of incidentally, but they are too important a part of farm management to be passed over lightly.

Manures. The necessity of attention to manuring, is founded on principles too plain to require extended elucidation. There is no soil, however fertile, which contains more than a given quantity of vegetable or animal matter in a decayed state. The pure earths will not support vegetable life, and every plant grown in a soil, makes a greater or less draft on the organic matters in the earth. The con-

sequence necessarily is, that a continued course of cropping must eventually exhaust this fund of matter, and leave the land unproductive, a result perfectly consonant with experience. To prevent this result, the plants and vegetable or organic matter, taken from the soil, or its equivalent, must be returned to it in the shape of manure. When this is done, there is no such thing as exhausting a soil, or rendering it unproductive. Farmers talk about lands becoming unfit for the production of crops, for which they were once excellent. Why is this? Simply because some substance which existed in that soil, to but a limited extent, but which was essential to the perfection of the crop grown, wheat for example, had been exhausted by cropping, and therefore the grain could not be perfected. It is evident that if as much, or more of this substance had been returned to the soil in the shape of manure than had been taken from it in the shape of crops, the fertility would not only have been maintained, but even increased. There are no farmers that manure so heavily as the Flemish ones; and there are no farms, which as a whole, approach so near the state of rich garden mold as these; and in no department of farm management in the United States, is there such culpable waste of money as is shown in our neglect of manures. It is unnecessary here to go into an elaborate notice of the different kinds of manures. Except in the immediate vicinity of cities, the farmer must rely principally on stable and barn-yard manure; making use occasionally of lime, marl, gypsum, or such other articles as the soil may demand, or his ability permit. Of the mineral manures, gypsum or plaster is most used, and is certainly one of the most valuable of the whole class. It is therefore to the preparation and use of stable and barn-yard manure, that the farmer must look for his supply of manures; and in this, much of the skill of farm management consists. A much greater quantity of manure will be saved where animals are fed in stables, or soiled as this mode of feeding is called, throughout the year, than where they are allowed to run at large in pastures during the summer months, or in open yards during the winter. To increase the quantity of manure and its value, the stables, yards, pig-pens, and cow-houses, &c., should be furnished with regular and ample supplies of straw litter, as this will absorb and retain a large portion of the urine and fluid matters which might otherwise escape and be lost. A large supply of swamp muck, or peat, should be always provided to be

made into composts* with the stable manure, night soil, urine, &c., collected on the farm. This is done by placing the materials in piles of the requisite width and length, two parts of the muck to one of the manure, in separate layers, to the height of five or six feet, and watering the mass with what urine, wash of the yards, &c. can be collected. In this way the muck or peat will undergo fermentation with the stable manure, and be converted into manure of the best quality. This method is practiced by many of the best farmers in New-England, and with the best success. Another method of adding to the quantity and value of manures made on the farm, is to cover the bottom of the yards on which the cattle and sheep of the farm are to lie, with swamp muck to the depth of 12 or 16 inches. In foddering, straw and the litter of the stables is to be spread over this yard covering, to be cut up and trampled upon by the animals, and assist in ab-

* The best place for a compost heap, is the barn yard; and the best materials, swamp muck or peat and stable manure. The muck should be dug so long as to be drained before using, and then drawn and piled in a convenient manner for using. The heap may be made by a layer of muck of the requisite length and width, and six inches in thickness; then ten inches of stable manure, then six inches of muck, then five of dung, then six more of muck, and another layer of manure, and so on until the pile is about four feet in height. To every twenty loads of manure, it is an excellent plan to add a load of ashes; and a layer of muck should always cover the heap. In the fermentation which ensues in the heap, care must be taken that the heat does not rise too high; from 100° to 120° is about right. The high temperature forces the germination of all seeds in the manure, and thus destroys them. The heap should have the urine of the stables thrown upon it, or the wash of the yards, or lime rubbish in foul water may be used. In making the compost heap, layers of straw, weeds, &c. may be mixed with the other materials, and aid in the fermentation.

In Sprengel's late work on Manures, the following is given as a preparation for compost, that has in Germany been secured by patent:

Twenty inches of straw dung, or else straw, dry leaves, weeds, potatoe stems, turf, muck, or marl. This is to be wetted with dung water, or with common water, and covered with night soil, poultry dung, street sweepings, pulverized bones, offal, kitchen slops, &c.

One-fourth of an inch of coal or wood ashes.

Three inches of good earth mold or marl.

Eighteen inches of horse, sheep, or cattle dung. The heap is again wet with dung or common water, and then covered with a layer of pond mud, ditch scrapings, mold or muck, or marl.

One-fourth of an inch of coal or wood ashes; and then a second course of strawy dung, ashes, mold or marl, horse, sheep, or cattle dung, with a final covering of mud, muck or marl. From two to three weeks in summer, and from four to six weeks in winter are required for the fermentation. If on any part of the mass the heat is too great, it is again covered with earth or mud, and wetted with water. If any part does not ferment, holes are made, that the air may reach these parts. When the mass is properly fermented, and the substances decomposed, it is well wet with water, worked over, put up in heaps from six to eight feet high, and covered with rich earth ten or twelve inches thick. After standing a few days, it is carried to the fields and harrowed in with the grain.

sorbing what urine and fluid animal matters may fall upon it. Such muck spread in the fall, will be found in the spring, when wanted for the corn lands, an efficient manure. Pigs are the very best manufacturers of manure if they are only furnished with means. The pig yard should have its supply of muck for them to root in and work over, and into which a liberal supply of weeds, pea-straw, or indeed any vegetable matter may be cast with profit. The pens should be kept clean, and the matters scattered over the yards. If they do not incline to work for a living, sprinkle some dry corn or peas over the muck, and they will soon manifest symptoms of industry, and the habit once acquired is not easily lost.

Application of Manures.

In regard to the application of manures to soils, a few simple principles, well considered, will furnish the best guide. 1st. The manures should be placed in that position where they can most effectually contribute to the nourishment of the plant. 2d. They should be placed where their decomposition, (if used in the fresh or long state,) can be completed with the least waste of nutritive matter. To effect what is indicated in the first principle named, the manure must be in the immediate vicinity, or in contact with the seeds. For this purpose, as seeds are deposited near the surface, the manures should be so applied, and *deep* covering must be considered unsuitable; or if thoroughly decomposed, little is lost, if no covering at all is given.* To effect the last object named, no fresh or long manures, should be used without covering. All fermenting manures give off more or less valuable matters in the shape of gases, which, when they are covered with earth, are re-

* The effect, or the relative value of several kinds of manures for the potatoe crop, is very well shown in the following experiment made by Young. Manures that afford the most nitrogen, are the most useful; hence those abounding in animal products, are superior to others:

Kind of Manure.	*Quantity used per acre.*	*Produce in bushels.*
Simple soil,		280
Dung,	32 cubic yards,	400
Wood ashes,	40 bushels,	400
Slacked lime,	160 do.	380
Rotted straw with some animal manure,	32 cubic yards,	400
Urine and soap suds, equal quantities,	1440 gallons,	240
Barley straw,	1½ tons,	300
Potash,	340 pounds,	380
Dung,	32 cubic yards,	400
Salt,	160 pounds,	
Dung,	32 cubic yards,	480
Lime,	160 bushels,	
Dung,	32 cubic yards,	520
Urine,	480 gallons,	

tained for the use of plants, but if not covered, are dissipated and lost to the farmer. A little attention to the question of the condition of the manures used, might have prevented many of those controversies that have arisen on the point whether manures are the most effective covered or merely spread on the surface. Manure, fully fermented and rotted, gives off no gases; and as the humus it contains is soluble, if mixed with the earth containing the seeds, or if only spread on the surface, they are sure to receive the whole benefit of its application. On the other hand, if the manure is applied unfermented and uncovered, a certain loss of nutritive matter ensues to the farmer. The fact then seems to be, that fully rotted manure may be covered or not, at the pleasure of the user; while the unrotted should always be covered; but no manure deeply.

Preparation of Soils for Seeds.

All soils intended for seeds, should be mellow, deep and fine, before the seeds are sown or planted. They should be mellow, that the roots of the plants, as well as the young shoots, may penetrate them readily; they should be deep that the roots may have ample range for pasture and for security against drouth; they must be fine, as the power of absorption and conducting moisture is mainly depending on this circumstance. In addition to these, they must be rich; that is, they must contain an abundant supply of matter for the formation of the new plant. All wet soils are cold and heavy. Draining will make them warm, light or friable, and the plow then will make them mellow and deep. It is believed more injury results to the farmer from an excess of water in his soils, than from all other causes combined. On such, manures are comparatively inert; and cultivation only renders them more dead and unfertile. Draining is the first, and the great step in the preparation of the soil for crops; this done, all the rest is simple and easy. On the plow, the farmer justly relies for the preparation of his soil for crops, and it can scarcely be used too effectively, never if the soil is in that condition which alone can justify the expectation of first rate crops. The use of the plow makes the soil mellow and fine, and if well managed, will give a depth sufficient for the growth of most cultivated plants. If farmers were generally sensible how much of their success was depending on the preparation of their soils, on the plowing, cleaning, manuring, &c. there would not be so many failures, and the quantity and quality of our harvests would be materially changed for the better. When the soil has been

brought into the condition described, that is, when it is made deep, fine, clean and rich, the cultivation becomes much more easy, as less labor with the plow will be required to fit it for crops, than previous to such preparation would have been indispensable. A single plowing of such lands, inverting a turf or clover lay, followed by the roller and harrow, will make a better bed for the reception of most seeds, than repeated plowings of ordinary lands, and ensure a better crop. It should always be remembered, that if the earthy constituents of a soil—the sand, clay, lime, &c., are present in their proper proportions, it is scarcely possible to make it too rich for the perfection of grains; but where this proportion does not exist, excessive manuring will generally be found to give abundance of straw, with little or inferior grain.

Much, it is believed, is gained by the farmer, in the management of the farm, by paying particular attention to his seeds, and their preparation for germination. Good perfect seed, is as necessary for the production of a healthy perfect plant, as is a good conditioned, well formed animal for the production of good stock. The substance of the seed forms the first food of the young plant, and if this is vitiated or defective in quantity or quality, its influence will assuredly be visible in the plant produced. Many of the diseases of plants may be prevented by preparation of the seed. Thus smut, which is one of the frequent causes of injury to wheat, is effectually prevented by a thorough washing in brine, and drying in new or caustic lime.* The attack of the wire worm, birds, &c., on corn newly planted, is in a great measure checked by rolling the seed in tar, and drying it with plaster or lime. There are

Choice and preparation of Seeds.

* There is, much to the disgrace and loss of our farmers, large quantities of smutty wheat annually produced in this country. Nothing is easier than to prevent this, and where proper precautions, in the preparation of seed are used, smut is unknown. An experiment recorded in the "Annals of Agriculture," made with very smutty wheat gave the following results:

No. 1,	sown dry, no preparation, had on the piece of ground,	....	377	smutty ears.
2,	washed well in clean water, plot same size,	.....	325	"
3,	" in lime water, " "	.....	43	"
4,	" in a lye of wood ashes " "	.....	31	"
5,	" in a brine of salt and arsenic, "	.....	28	"
6,	steeped in lime water 4 hours "	.....	12	"
7,	" in lye 4 hours, "	....	3	"
8,	" in arsenic 4 hours, "	.....	1	"
9,	" in lime water 12 hours "	.....	6	"
10,	" in lye 12 hours, "	.....	0	"
11,	" in arsenic 12 hours, "	.....	4	"
12,	" in lime water 24 hours, "	.....	0	"
13,	" in lye 24 hours, "	.....	0	"
14,	" in arsenic 24 hours, "	.....	5	"

frequently great failures and complaints in regard to the germination of beet, carrot, and onion seeds, which may be prevented by soaking in water and garden mold, of a proper temperature, until the germination has commenced, and then sowing or planting them in the usual manner. One thing, however, must be remembered, and that is, if seeds once brought to this condition, are afterwards thoroughly dried, whether in the ground or otherwise, a failure must be expected. A spoonful of common salt strewed around a hill of corn, a few inches distance from the plants, will protect it from the cut worm, as it also will cabbages and other garden plants attacked by them. The turnep fly is the most formidable enemy the root grower has to encounter; but all trouble from this source is avoided, if the seed previous to sowing is fully steeped in train or blubber oil. These are only a few of the instances in which much benefit is gained by attention to the seed; to the experienced cultivator, many other instances will readily suggest themselves. In the after culture of crops, much, indeed it may be said every thing, is depending on their being kept clean or free from weeds. Every thing growing, not belonging to the crop under cultivation at the time, however valuable it may be in another place or at another time, is a weed, and must be treated as such. Where cultivated crops are grown for a particular use, a mixture of seeds is sometimes admissible; as when peas and oats are sown for fodder; but where perfection in a plant is expected, there should be nothing to lessen its hold on the soil, or detract from its nourishment. The value of any grain is much enhanced by its being free from admixture with any other; and the man who allows what are commonly called weeds, to grow in his corn, root or grain fields, cannot be said to have practiced the first and simplest elements of agricultural success.

Choice of Stock.

One of the most vital, yet most common examples of mismanagement on the part of farmers, is to be found in their selections of stock for farm purposes and for rearing. If there is one truth more self-evident than another, it is that the best breeds and the best animals always pay best on the farm, and that the attention of the farmer should be directed to such in stocking his farm. The difference, in coming to maturity, in weight, in ease of fattening, and in other respects, is so much in favor of the improved breeds, that the farmer may be said to exhibit a culpable neglect who does

not, as apportunity offers, introduce such upon his farm.* There is another rule of much importance in the stock management of the farmer, and that is, never to keep more animals of any kind upon it than can be kept well; for although it is a great error to suppose, as some do, that there is more in the keeping of animals than in the breed or any thing else, still much of the value and consequent profit does depend on the keeping and treatment they receive. It may not be possible to avoid occasional casualties in the management of stock, but it is certainly a very bad sign when a farmer carries a wagon load of hides to the tanner in the spring, or has a large lot of pulled wool, gathered from sheep that became defunct in consequence of starvation. All animals require less food during our winters, and will maintain a better condition, if kept in warm, dry, ventilated stables or yards, where they are protected from the cold and storm, than when exposed to the changes and vicissitudes of the weather. Diseased animals should always be separated from the sound ones, as there are many diseases destructive to the stock of the farmer, that are decidedly contagious. This is particularly the case with sheep; and good management requires that flocks should be frequently examined, to insure the health of the whole. It is not enough that animals should have plenty of good food. They should have access to salt at all times; horses should once a week have a handful of ashes with their

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* In no way is the great improvement in animals, by attention to breeding, more conclusively shown, than in the average advance in weight, during the last 40 or 50 years. The records of the Smithfield market in London, put this matter beyond a doubt, giving the following result for a series of years:

Year.	*Average weight of cattle.*	*Average weight of sheep and lambs.*
1810,	26 stone, 6 lbs.	2 stone, 0 lbs.
1830,	39 " 9 "	3 " 8 "
1840,	46 " 12 "	6 " 6 "

In the United States, the advance has not perhaps been quite as decided; but the following statement by C. E. Norton, Esq. which has appeared in the agricultural papers, will show we are not in this respect, far behind. They are transcribed from an old record; and New-England can furnish many such. The animals were killed in Nov. 1790:

Animal.	*Weight.*
Hatch ox,	361½ lbs.
Perkins ox,	511 "
Hussey cow,	321 "
Emery oxen, No. 1,	508 "
" 2,	459 "

Some animals killed in the same town in 1841:

Animal.	*Weight.*
Cogswell cow,	772 lbs.
do yearling heifer,	562 "
do 2 year old heifer, live weight,	1,174 "

provender, and if kept in stables, a few carrots or apples three or four times a week; hogs require charcoal, rotten wood, or other similar matters, occasionally; and the sheep grower will find a great advantage in frequently spreading over the bottom of the troughs from which his sheep take their salt, a little tar, and sprinkling the salt upon it. It must be remembered that domesticated animals are not in the state of nature, and require a treatment in some respects founded on their state of subjection.

Where a farm is subjected to a regular course of rotation, the formation of pasture and meadow land follows as part of the system, and no difficulty is experienced. But there are many farms in the country, where, from the nature of the soil, or from location, rotation is not deemed proper, and more attention is given to grazing than to grain. In such, the management or occasional renovation of meadow and pasture land, becomes an object of much consequence, as every farmer is aware that in a course of years the cultivated and valuable grasses are apt to run out, and have their places occupied by the more hardy, but coarser indigenous and comparatively useless grasses. In all such cases, re-seeding the land with the cultivated grasses becomes necessary; and several ways have been recommended for doing this without going through a series of cropping. One of these is to sow the requisite quantity of the desired grass seeds over the deteriorated turf, and then with a sharp toothed heavy harrow, incorporate the seed with the soil by repeatedly passing over it. In this case, if a dressing of fine manure is added, the seeds will be found to spring more freely, and occupy the ground more quickly. Another method is to turn over the turf in the spring, lay it smooth, apply a dressing of manure, and plant it to corn. This crop is cultivated without hilling; at the time of the last hoeing, the grass seeds are sown over the corn, and covered with the hoe, care being taken to leave the ground as level as possible. The seeds spring up, and protected by the corn from the sun, get such root that they rarely suffer when the corn is removed in the fall. This method has been very successful on light lands, or such as were subject to drouth, and on which spring sown grass-seed is liable to suffer from this cause. A third method is, to turn over the defective meadow or pasture in the fall. In the spring give a dressing of manure, and sow to spring wheat, oats, or barley, as the character of the soil may indicate as most suitable. On these the grass

Meadow and pasture.

seeds are to be sown, and lightly harrowed in. This method frequently succeeds admirably. There is another mode of renovating pastures or meadows, which has of late been introduced into some parts of New-England, and it is said with great success. In this way the land is plowed, or the surface inverted in August or September, the soil made fine by harrowing, and the grass seeds are then sown alone, or without any crop. If the land is much exhausted, or poor, a dressing of compost manure harrowed in with the seeds, is found very useful. The young plants generally stand the winter well, and the next season shows a fine growth of the valuable grasses. Where soils are so situated that they cannot well be plowed, the first method may be used with great advantage, but where the turf can be inverted, it will be found advisable to do it in all cases, as the roots of the coarse grasses decomposed will furnish nutriment for the new ones, even where no manure or compost is added. There can be little doubt of the propriety of taking a crop of some kind at the time of re-seeding, certainly if a dressing of manure is given. It is very certain, however, that a crop without manure, will only still further exhaust the soil; while re-seeding without cropping adds the decomposed roots of the grasses already in the soil to its elements of fertility; consequently in already impoverished soils, seeding without cropping may be advisable. The practice of fall feeding meadows, so commonly pursued by our farmers, is a most injurious one, if the feeding is as close as it usually is. It is necessary for the perfection of the roots of all the grasses, and consequently for their durability, that leaves should be permitted to exist in full vigor at some time, and as the first ones formed are each year cut by the scythe, it appears rational that the succeeding ones should perform their functions undisturbed. In addition to this, if the second growth is left, it forms a good protection for the roots during the winter, and in its decay furnishes precisely the material the future growth and vigor of the plant requires.

No farm can be well and successfully managed, that is destitute of good fence; and there are few signs less equivocal than that of farmer's fences. Of fence there many kinds, such as Virginia or worm fence, stone wall, post and rail fence, post and board fence, turf wall, hedge fence, &c. Of these kinds the stone wall, wherever suitable materials are to be had, is decidedly the best. It occupies as little ground as any, and is the most permanent. The worm or rail

Fences.

fence is most common, and the worst of all. In its construction there is a great waste of timber; it decays early, and it renders useless for culture no small part of a farm. In a farm of 100 acres fenced into suitable sized fields by worm fence, from one-fifteenth to one-twentieth of the whole is occupied by them. Besides, the corners not being reached by the plow, are nurseries for weeds and vermin. Hedges have not proved very successful in our climate, particularly when made of plants used for that purpose in other countries. With our own we may hereafter succeed better. A fence, the posts of which are heart locust wood or red cedar, with pine boards, will last for many years, and in value and durability be next to stone.* Turf walls, on moist or clay lands, have in many instances proved excellent and durable structures, but on rich or loamy soils, the turf does not acquire sufficient firmness to resist animals. But whatever may be the kind of fence, it must be kept in repair, or much of the labor spent on the farm will be lost. Unruly animals, broken down fences, destroyed crops and quarrelsome neighbors usually go together; good management of the farm avoids them all.

Wood-lands.

A very important thing on a farm is its woodland, and particularly is this the case in this and the other northern states, where it must be extensively relied upon for fuel. There has been great, not to say criminal negligence, on the part of the land-holders and farmers

* Few are aware of the cost of dividing a farm into suitable sized fields. So great has this become already, in some parts of our country, from the scarcity of materials and cost of procuring them, that the necessity of adopting a mode of husbandry which shall dispense with fences, seems imperative. In Belgium or France, where there are no fences, all animals, not taken care of by shepherds, &c., are soiled, or kept up the whole year. The cost of different kinds of fences, in ordinary cases, has been estimated as follows:

Kind of Fence.		*Cost per Rod.*
Worm, or common rail fence,		$0 75
White cedar fence, post and rails, 5 rails high, three lengths to 2 rods,	Cost of setting and making not included,	0 91
White pine rails, 2 inches by 8, chestnut posts, 4 rails high, 3 lengths to 2 rods,	" " "	0 64
Four and a half feet stone wall, from $1 to $2.50 per rod,		1 75
Hedge fence, Virginia thorns, 21 to a rod at 4 years old, cost per rod,		0 40

In the Address of Mr. Biddle, before the Philadelphia Agricultural Society, in 1842, are some statements and calculations that place this matter in a forcible light. He says he has heard of a farm surrounded by a cedar fence, which would actually sell at auction for more than the farm itself; and another farmer assured him that the fencing of his farm of 300 acres cost him $5,000. Mr. B. estimates the cost of fencing the improved lands of Pennsylvania, at not less than $100,000,000; and as much of it will not last more than from ten to fifteen years, the annual tax on the State, for fences alone, is from five to eight millions of dollars.

in this matter. Not content with clearing of its timber more land than they could possibly cultivate, they have gone on to destroy and waste in a manner which has already left many districts of our country almost bare of wood for fencing or for fuel. It seems to have been forgotten that a tree does not spring up like a mushroom, but is the work of a century; and while little pains have been taken to preserve and plant, the ax has plied its work of destruction incessantly. On every farm of 100 acres, from 15 to 20 acres of land should be kept in wood. This will not be more than sufficient for ordinary building purposes, for fences, and for fuel; and it will leave for cultivation, far more land on every farm, than is usually cultivated well. Many seem to think that when they reserve a piece of woodland, if the timber is spared, all is done that is required, but it is not so. The timber should be cut with system, and not at random. The land should be kept fenced, and all animals excluded, or the young growth of timber, on which every thing is depending, is destroyed. Too many of our farmers allow their woodlands to be fed, and though some profit may be derived from this source, and their woods cleared, yet there is a serious loss in the end. Oak and chestnut lands are not so much injured by cattle and sheep, as maple, elm, beech and basswood lands, yet all suffer more or less. Ten acres kept fenced, will produce in a given number of years, at least one third more timber than the unfenced, and the last must eventually be destroyed. This is as certain as it is that continual cropping and no manuring will exhaust fertility in any soil. But it is not enough that a regular piece of woodland should be reserved. There is scarcely a farm or field, on or around which large numbers of trees may not be advantageously grown. Planting trees should be the yearly business of the farmer, not fruit trees merely, but forest trees; and the man who neglects to do this, neglects one of the simplest elements of success. Every vacancy in his wood lot should be kept filled; the roadsides planted with trees, and clumps or scattering trees in his pastures or fields will add far more to the beauty and value of the farm, than they will detract from the crops cultivated. All trees may be transplanted with success, if sufficient care is taken during the operation, and if the soil into which the tree is removed, is in a proper condition to receive it. It is only necessary to remove so much of the earth with the roots, that the finer fibres shall not have their hold on the soil

broken, or the rootlets dried by exposure to the air. That farmer has an opportunity for profitable employment, who has on his farm a single suitable spot not yet occupied by a tree.

Garden. The garden must not be overlooked in this brief outline of farm management. The farm garden, well managed, contributes more than any other part to the comfort of the family, and in no small degree to the profits of the whole. The garden should be the miniature of a well conducted farm, as the latter is or should be but an extended garden. In it should be found all things suitable or necsssary for cultivation, and all arranged and kept with the greatest neatness. That farmer labors to little profit, either on his farm or in his garden, who allows the weeds to perfect their seeds before he commences their extirpation. One hour, while weeds are young, will do more for cleaning the land, than a day after the seeds are matured. A garden requires a great depth of soil, freedom from all surface or stagnant water, great richness, and perfect exemption from weeds. On soils so conditioned, labor will not be expended in vain.

Dairy. There are very few farms on which the dairy or the making of butter and cheese, does not come in for a considerable share of the labor and the profits. A good cow will produce during the season, at least twenty dollars in butter or cheese, or both. Great neatness is required in every department of the dairy, from the milking of the cows to the sending the products to market. A large portion of the butter sent to our markets is of an inferior quality. This must be owing to the making, as there are no finer or sweeter pastures than those of this country. Milk houses should be so situated as to preserve, as far as possible, the proper temperature; and above all, should be kept free from all matters which afford unpleasant odors. They should never be connected with the kitchen, as they usually are, as the fumes from the cookery will certainly affect the quality of the cream. In working the buttermilk from the butter, the hand should never be used. It will convert a part of the butter to oil, and small as this part may be, its bad influence will pervade the whole. The great secret of making first rate butter, may be comprised in few words. Perfect neatness in every part; churning the cream while sweet; using salt of the best quality, and not being too liberal of that; never allowing the hand to come in contact with the butter; completely freeing the butter from the buttermilk;

packing in close sweet vessels, (those of stone are the best,) and storing in a place where the air is cool and pure.

This paper will be closed with a few remarks on farm buildings. That there is a sad neglect of attention to this matter, is evident to all. Our farm buildings are too often large, inconvenient, and unfavorably located. No attention is paid to the position of the farm; the great object seems to be to get as near the road as possible. Our farmers seem to have something of the feeling that actuated the English stage-driver, who, when dying, requested to be buried as near the road as possible that he might have the satisfaction of hearing the carriages pass. The general situation of the farm, the ease of working it, the moving of the crops and manures, ready access to water, good ground for yards and buildings, and a healthy spot, should all be considered when fixing on a location for farm buildings. How often do we see farm houses fixed in the edge of a swamp, or at a distance from water, simply because the road happened to pass at that point; thus endangering health and incurring constant inconvenience to gratify an idle whim. In building, utility should always, as far as possible, be combined with good appearance, and when a correct taste governs, this is easily done; but convenience must never be sacrificed to show. Whatever is built, let it be done well. Slightness and cheapness are the two last things to be consulted in farm buildings; firmness and durability are the essential requisites.

Farm Buildings.

In managing a farm well, there must be economy, there must be labor. The head must be intelligent and the hands active. The master's eye and the master's influence, must be every where, that all may move harmoniously, and the desired results be certainly produced. No more work should be laid out, than can be done well and in time. No more land must be cultivated than can be so manured as to preclude the possibility of its growing poorer. The farmer must labor, but there is no necessity of his being a slave; and he should never for a moment forget that honest industry, whatever may be its nature, is, and always will be, honorable.

PLANS OF BUILDINGS.

DESIGN FOR A FARM HOUSE AND OUT-BUILDINGS.

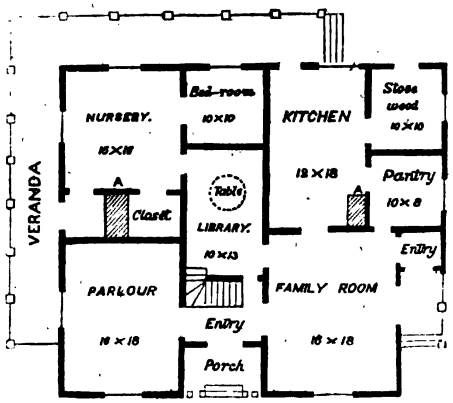
BY JOHN J. THOMAS, MACEDON, N. Y.

FIGURES 1, 2, 3, represent the farm house—fig. 1, the elevation, partaking of the Italian style—fig. 2, the ground plan, and fig. 3, plan of the second floor. A form nearly square is given to the building, for the sake of economy, requiring far less external covering for the space enclosed; at the same time the outline is somewhat broken, to prevent heaviness and monotony of expression. About half is surrounded with a veranda, under which lathing and plastering may

Elevation—Fig. 1.

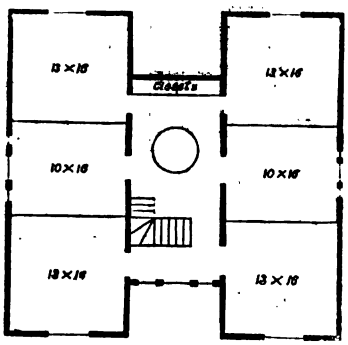
take the place of clapboards, and thus save expense. The whole building may be considered as composed of two parts or wings, extending from front to back, the ridge of their roofs also in the same direction, connected by a center building with the roof at right angles to the two former. The two wings are chiefly occupied as parlor and family room in front, and kitchen and nursery back; and the center part as a library, (for books, minerals, maps, astronomical diagrams, &c.) lighted by a sky-light in the roof, through a circular opening, surrounded by a railing, in the second floor. This opening

will admit of thorough ventilation of the adjacent rooms below, if desired, or it may be closed by a sash of glass, the light softened by a translucent varnish. The kitchen is lighted with one very broad



Ground Plan—Fig. 3—Scale, about 20 feet to an inch.

window. A. A. are chimneys, and admit of open fireplaces for the parlor, nursery, kitchen and family room. If a hot air furnace is used, by placing it under the center of the library, the heated air may be easily conducted to all the rooms above. The nursery entry opens on the large veranda, enabling children to take fresh air in all weathers. A back entrance to the parlor may be easily made from



Second Floor—Fig. 3.

the same entry if wished. The bed-room adjoining the nursery, is covered with a lower roof, separate from the rest of the roof, and corresponds with the roof of the porch.

The eaves are 5 feet above the second floor; and 4 feet additional

rise in the roof, gives ample height for the upper rooms, which may be six in number, and allow sufficient space for closets.

The dairy should occupy the coolest part of the cellar, and be entirely separated from other parts by walls. The best and cheapest material for the floor, is a coating of two inches of water lime mortar.

The size of this house will appear too large to many, but it is not larger than the houses of a large portion of our farmers, after piecing and patching; costs much less, and appears far better. It is much easier to pass from one room to another on the same level, than to pass a flight of stairs; hence the aim has been to have as many of those in common use on the same floor. This also contributes to economy in erection—as calculation will readily show. A one story house, 10 feet high and 40 feet square, will enclose 1600 feet of floor; a two story house, 28½ feet square and 20 feet high, will also enclose 1600 feet; but the latter will require 650 feet more of siding, which will cost more, with painting, than the addition in shingling the former.

A careful and liberal estimate, made from full bills of cost of several houses actually erected by the writer, places the cost of this building, if made plain and of wood, at about $1,400, at the average price of materials, teaming, labor, &c., in central and western New-York. This cheapness is owing principally to the cottage form, compact arrangement, and the diminution of siding and paint under the veranda.

Elevation of the Farmery—Fig. 4.

Figure 4, is an elevation of the farmery, and fig. 5 is a plan of the farmery, house, and adjacent grounds. The farm buildings form nearly a hollow square, the barn in the center of the further range. In fig. 5, the barn cellar only is shown, being on a level with the stables on each side. The further part is for roots, and is filled through two windows with hopper-like troughs, into which the cart is dumped. The nearer part is for straw, to be used for cutting and for littering. From the intermediate space, passages 4 feet wide run in front of the stables on either side, for feeding. Fig. 6, shows the upper floor of the barn; A. unthreshed grain; R. corn crib;

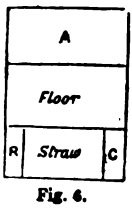
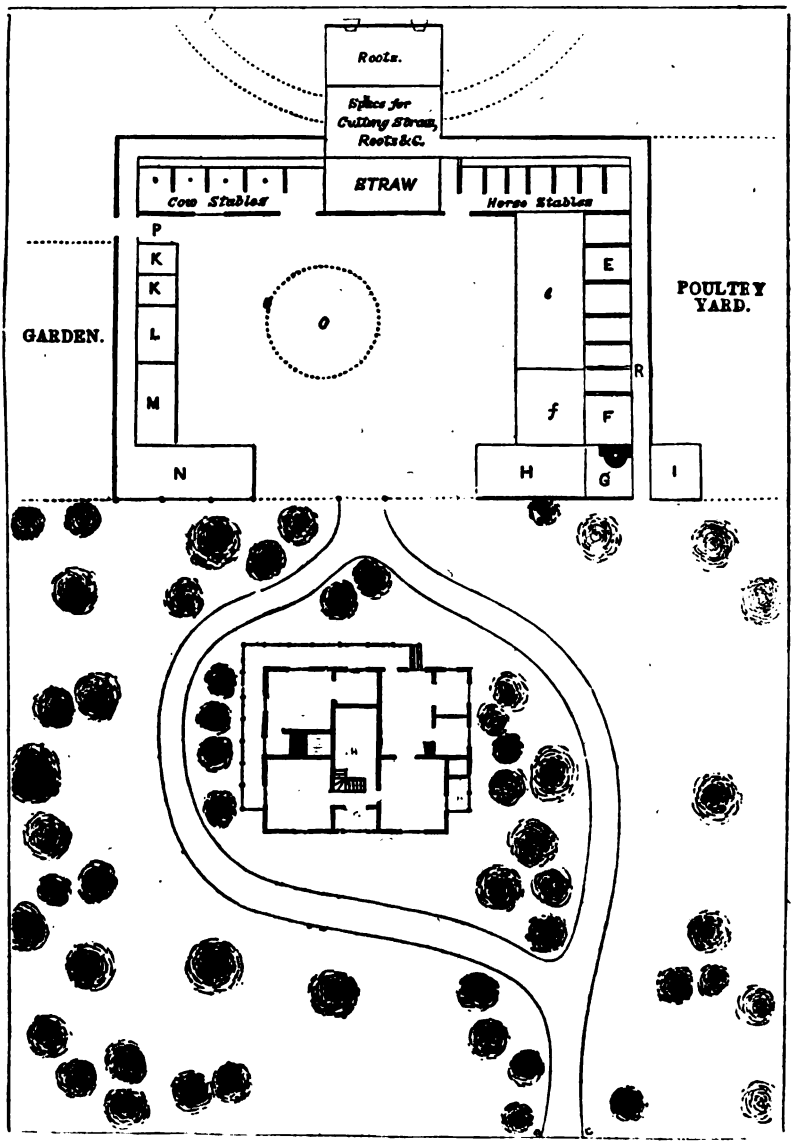


Fig. 6.

C. granary, the bin for oats with an opening below for feeding horses; this opening closed by a sliding board. A door opens from each of the last, to facilitate loading of wagons from them in the yard



Plan of Farmery, House and Grounds—Fig. 5—Scale about 40 feet to 1 inch.

below; the bay for straw extends upwards as high as the top of the granary, over which a floor is placed for holding unthreshed grain above. The dotted lines show the wagon way for entering

and passing from the barn floor. This way should be wide enough on one side to place the horse power of a threshing machine. A band may extend from this horse power through a hole in the floor, and drive the straw-cutter, root-slicer, &c. below. The hay for horses and cows, is kept in the loft over the stables, from which it is conveniently thrown down into the passage in front of the animals. E. shed for sheep, with racks at right angles to the passage R. from which they are filled with hay thrown down from above; *e*, sheep yard; F. piggery; *f*, pig yard; G. room for boiling roots; I. poultry house; P. passage from manure yard *o*. to back part of farm. K. K. calf house; L. work shop; M. house for plows, harrows, horse rakes, rollers, &c.; N. wagon shed. H. house for keeping store wood during seasoning, wood seasoned two or three years being much better than for a shorter period; and a rough boarded out-building, being also cheaper than a well finished painted one in contact with the house. The manure yard *o*. should be about two feet below the surrounding buildings, to which the cleanings of the stables are to be taken daily in a large boxed wheel-barrow, and straw and marsh muck supplied as needed. The yard should be well supplied with water as convenience may dictate. Ventillators, made of square board tubes, should be placed over the stables and run up through the roof.

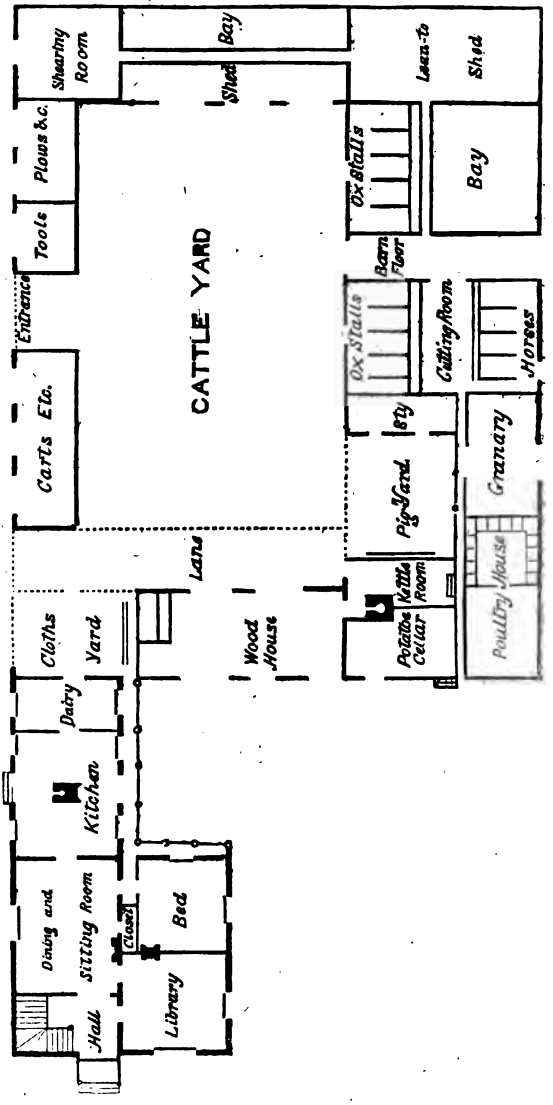
This plan may be changed, without altering the general arrangement, so as to contain more or less grain, more or less hay, stable room, &c. according to circumstances. The hollow square affords shelter to the yard from wind, an important consideration for our climate. The extent and expense of the buildings, are not greater than are often seen, when convenience of arrangement is entirely set aside; and the labor of preparing food and feeding animals, double what it should be. The wings, sheds, poultry yard, garden, &c. may be reversed, according to aspect and exposure to winds.

PLANS OF FARM BUILDINGS.

BY D. G. MITCHELL, SALEM, CONN.

First is the ground plan of all the buildings proposed, (Figure 1.) Entering by the porch at the extreme left of the diagram, we find a hall lighted from the west, with a flight of stairs leading to three good sized chambers. A door at the right, opening upon a snug

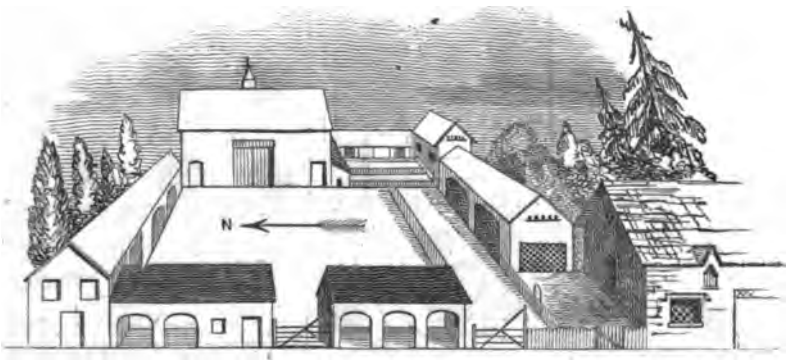
library or parlor, or business room; immediately before the entrance we open upon the sitting room—the dining room—in short, the family room, the farmer's *sine qua non*. To the left, are passages to



Ground Plan of all the Buildings.—Fig. 1.

the library or parlor again, to closet and through back entry to bed room. Before opens the way to kitchen. Passing out of the kitchen to the left, we enter upon the porch, running the length of kitchen and dwelling; following on to the right, and turning to left, we enter

a spacious wood house. Through this we reach the door to kettle room, (the eye must follow the plan as well as *expose*,) and the potato cellar, with a little slide window. Ascending (steps are marked on chart,) to the farther end from that on which we entered, we find ourselves on a rude veranda, formed by the projecting eaves of the poultry house and granary; along this, doors open upon hens, eggs, and grain; while on the other side, below you by three or four feet, are the pigs again. The cutting room claims attention next. It surely is not far to carry fodder to horses and oxen on either side, and it is lighted by good sized window over top of sty, which, by the way, is a leanto attached to barn. Upon the barn floor is a trap-door, and above it a slight tackle; the trap-door opens upon a mammoth cellar for roots, and the tackle brings them to the mouths of hearty beeves. But on, by gang-way to extreme end of barn, we pass stalls on left, and bay to the right, under edge of which is an opening to the rack in the open cellar below, to throw fodder to the young stock. Passing down a step or two at end of gang-way and through large shed, we come upon another gang-way, (built to walk on,) on one



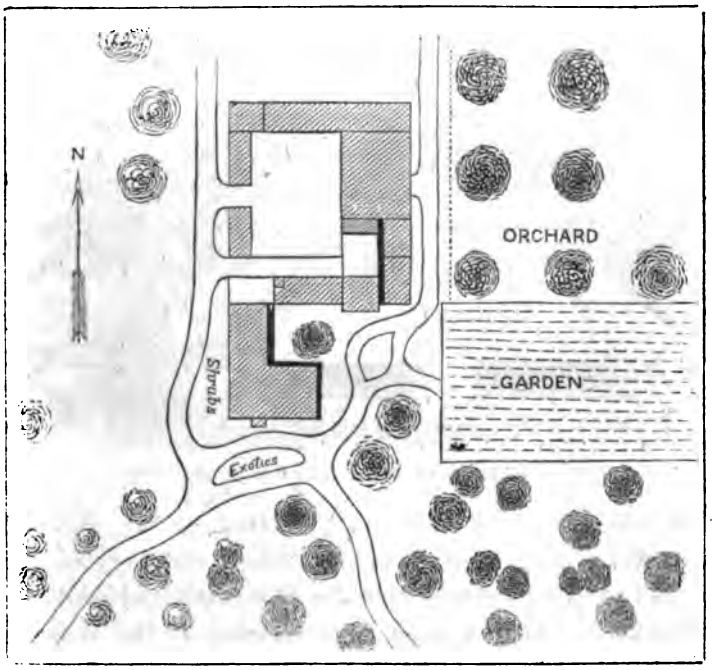
Barn, out Buildings, and part of Dairy from the west.—Fig. 2.

side of which is a rack under an open shed, on the other a bay. Passing up a step or two at the end, is a door to shearing room; above it a lathed and plastered wool room, (and I should have remarked, that over the kettle room is a grand large workshop.) Out at the front of this temple of fleeces, and we are on the ground again, and with a glance at some well built sheds, whose outline is on the plan, for tools, carts and et cetera. Look at my picture of them, (fig. 2.) barn and all, from where you stand.

Passing along a smooth gravelled way by dairy and kitchen, and all, see again a view of the house in perspective, (fig. 3.)

View of House from the southwest.—Fig. 3.

The laying out of the grounds is here, (fig. 4.)



Plan of Buildings and Grounds.—Fig. 4.

A word as to specifications and estimates. The first, further than I have given by my outlines, I consider useless, as each one's need will suggest deviations from any rule laid down. All that is essen-

tial to the unity of the plan is the preservation of correct proportions. The eye of taste will guide in this matter; the eye without taste, will never see the lack of precision. Let those wishing fuller specifications, first resolve the dilemma.

The estimate could be made, but how should it be made? For brick, stone, wood, stuccoed, plain or ornamented? Shall it be made in view of the superintendence of an intelligent proprietor, saving, by a thousand means, what to the indifferent would swell the outlay by thousands? $2,500 would finish the buildings enumerated cheaply,—$3,500, well,—and $5,500, elegantly. Nearer than this, in view of contingencies, it is impossible to come.

The style of building will admit of much more cheapness, consistent with beauty, than an ordinary farm-house; and it will admit of an ornateness, in the hands of taste and wealth, to please the most lavish. The poor man may cover the chestnut of the frame, taken from his own grove, with plain boards, well battoned; within, he may lath and plaster, cheap as lime and sand. The wealthy may hang black oaken wainscotings, wrought into the rich forms of Gothic wildness—arching his polished jambs—crowning his doors with vine leaves; without, he may have hewn stone labels, and elegantly cut tracery, and oriel windows of many colored glass, with all the *et ceteras* that blend so gloriously in the old abbeys (I have seen their portraits,) of olden time.

The advantages of the plan laid down are, first, that the house and yard are effectually protected from cold winds by the out-buildings; and there is a most gracious shelter from northeasters about the kitchen door. Secondly, every cool breeze of summer has full play upon the east, west and south of dwelling. The effluvia and noise, and offensive sights of barnyard, are effectually shut off from the house, though near enough for every convenience. The maid may empty her pail of swill, (I like the Saxon,) without wetting a stray lock or a dainty slipper. The farmer, too, in sickness or in storm, may see to the health and provisions of every animal, without encountering the weather. The woodhouse is in grateful contiguity with the kitchen; the piggery, with potatoes and kettle; the shop overhead takes advantage of the chimney for a winter day's work. The poultry yard is near the piggery, the cattle yard, the granary, and (best of all) the cook; the granary is convenient to the pigs, the poultry, the horse and the cattle.

A word in anticipating objections. 'The house is too near the noise and effluvia of the barnyard.' I plead guilty in a measure; but on reference to the plan, it will be seen that the woodhouse and shop, and lane, intervene, and prevent all unpleasant connection. Again, summer winds blow in general, (in this climate,) from the dwelling, carrying in opposite direction disagreeable effluvia. But after all, the farmer who is ashamed of his cattle yard, or its odors, had best set his house from them, a goodly distance indeed! 'But the buildings are too closely united, a fire would prove disastrous.' True, but get insured, and *keep insured.* Industry will pay for the policy.

DESIGNS OF FARM HOUSE AND OUT-BUILDINGS.

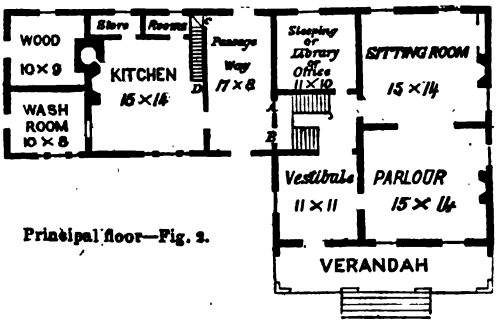
BY T. M. NIVEN, NEWBURGH, N. Y.

GENTLEMEN—I submit for your consideration the accompanying design of a genteel Farm House, of moderate pretensions and cost. It is gratifying that this subject is at last receiving that attention, in part at least, which its importance demands.

Elevation.—Fig. 1.

In past years, the idea of a farmer's dwelling with any pretensions to taste, carried with it, to his mind, extravagance and ruin; and this false notion was often fostered by the mechanic, who while able to put his work together in a substantial manner, yet never had an idea

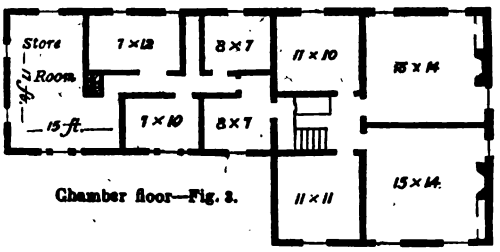
of design other than what his father and father's father practiced in days of yore.



Principal floor—Fig. 2.

The result of this has been, in very many cases, that our affluent and intelligent agriculturist inhabits one of those "shingle palaces" so inconvenient in their internal arrangement and so absurd in their appearance—the just object of ridicule. Many, very many of our beautiful landscapes are marred and deformed by these *wooden wens* on the fair face of nature. And these uncouth edifices were generally erected at double the cost of a more beautiful and convenient dwelling.

Another prevalent absurdity is the choice of material; for even in districts where good stone or brick are abundant, how often is the glaring white clapboard substituted therefor, than which nothing can be worse as regards taste or economy. A radical change in the rural architecture of our country is "a consummation devoutly to be wished."



Chamber floor—Fig. 3.

This design is for a house 28 by 30 feet; first story 8½ feet high; chamber story 7½ feet high, with a wing. The principal floor of main building is about 3 feet above that of wing. The dairy rooms I would place in the basement of main house, occupying all the area under the parlor and sitting room. For butter making, this is alto-

gether preferable to having the dairy rooms above ground, being cooler and less liable to sudden changes in temperature. For this I have the judgment of some of our best Orange county butter makers. A small private cellar under the library, and another under the vestibule is intended. The root cellar I would construct under the wing. The passage way in the wing may be used as an eating hall, except in very cold weather. The door A. (fig. 2,) opens upon the stair which descends into the dairy rooms and cellars adjoining. Door B. opens upon the landing, from which four or five steps conduct to the main floor. Door C. opens upon stairs leading to sleeping apartments of the farm servants, and door D. to stairs descend- to vegetable cellar. A door on the landing of principal stairs will connect with attic of wing. If the small room marked *office*, is used for that purpose, it would be proper to have a door opening from it into passage way in wing.

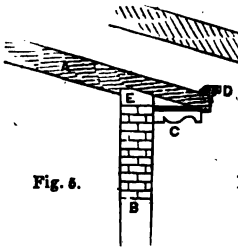


Fig. 3.

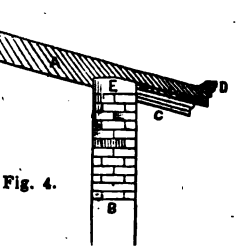
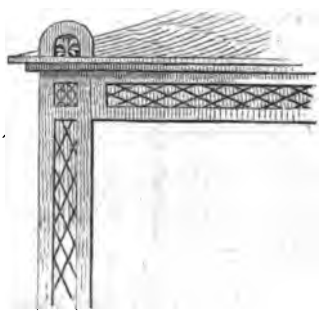


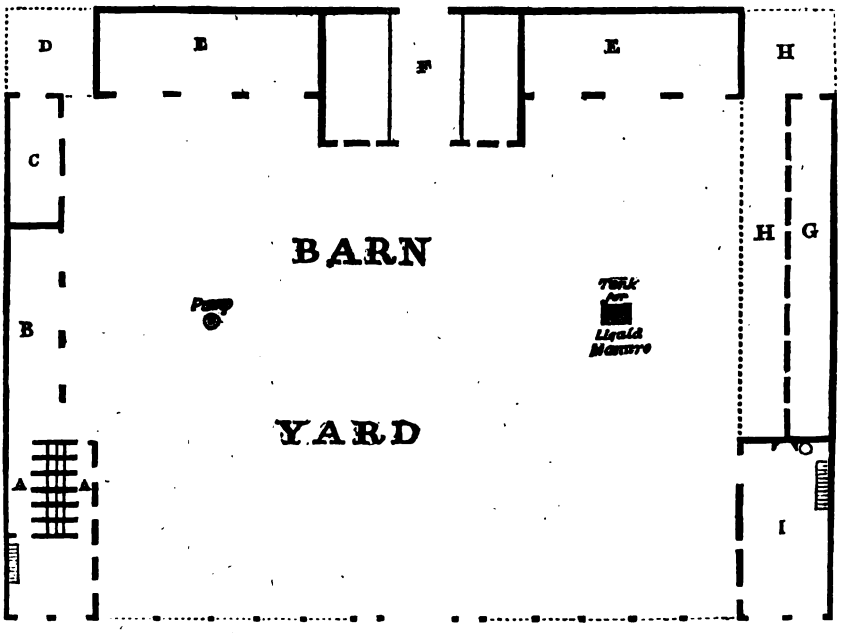
Fig. 4.

The roof of the main building, I would recommend to be of tin or zinc, for many reasons; shingles however may be used, (except in the gutter at the eave,) where they are much cheaper or more abundant. The roof of this building it will be seen, projects pretty boldly about 2 feet over the line of the exterior wall. This not only secures a good, dry, and well sheltered house, but it gives the dwelling at once something of a superior air. This construction of the roof will be easily understood by mechanics, as it is formed by employing rafters of sufficient length to project 20 or 22 inches over the face of the wall B. These may be ceiled on the under side, so as to show the slope of the rafter, (fig. 4.) or the finish may be made to show a flat ceiling under the projection, as in fig. 5. In either case the appearance of support is increased by adding plain brackets (C.) about 4 by 5 inches and nearly as deep as the projection of the roof.


Section of Verandah.—Fig. 6.

The roof of the wing should project rather less, and 12 or 14 inches will be sufficient, and the brackets may be omitted here. The gutter, it will be perceived, is formed at the edge of the roof, and in this, tin or zinc had better be used. To carry out this building properly, working plans, details, and a full specification might be necessary, which can be furnished upon application. The estimated cost of this building is $2,000 in Orange county, either of stone or brick, probably a little less of wood. In other places it would be more or less, according to the price of materials.

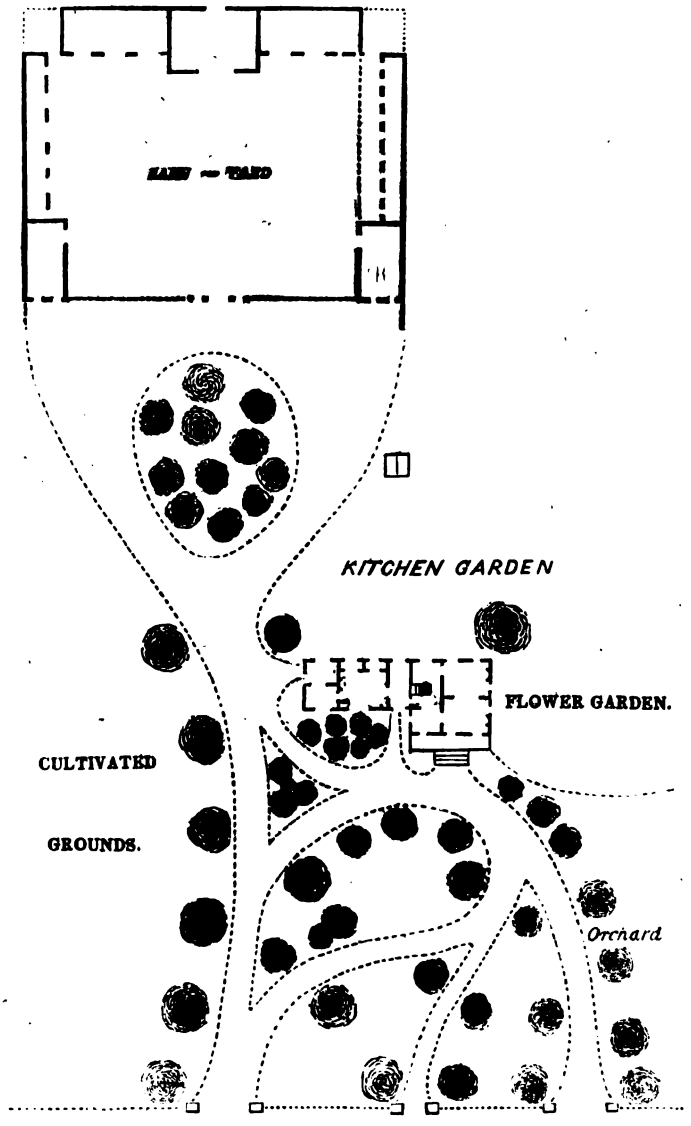
Elevation of Farm Buildings—Fig. 7.



Ground Plan of Farm Buildings—Fig. 8.

A. A.—Horse stable, with hay and oat loft above and wagon house in front.

B.—Open shed with fowl house over it.
C.—Shed for calves with small yard (D.) attached.
E. E.—Hay houses, with accommodation for cattle underneath.
F.—Barn, 50 feet by 35 feet.
G.—Piggery, with enclosure, (H.) with gallery above opening from granary, by which the feed may be distributed.
I.—Receptacle for farming implements, with granary and work shop above, also having accommodation for boiling hog feed.



Plan of Buildings and Grounds—Fig. 9.

The number of windows in front of barn may seem strange to those who have not reflected upon the subject, but I am persuaded that ventilation in buildings, containing large masses of grain in the straw and hay, is of the first importance. In all these windows I would have coarse fixed blinds. It also adds materially to the looks of the building.

CORRESPONDENCE.

REPORT OF CORRESPONDING SECRETARY.

JAMES S. WADSWORTH, ESQ.

President of the N. Y. S. Agricultural Society:

SIR—The Corresponding Secretary of the New-York State Agricultural Society, would respectfully report:

That in pursuance of the directions of the Executive Board, he has followed up a similar course of inquiry to that instituted by him the preceding year, for the purpose of collecting agricultural information of value to the farmers of our State.

Communications have been addressed by him to agriculturists, eminent for experience and skill, in this and other countries, to collect such information; and in our own State particularly, a strenuous effort has been made to obtain a detailed view of the systems of husbandry practiced in the different sections of its extended territory. To ascertain the defects and advantages of those systems, with the view of correcting the former by a more general diffusion of a knowledge of the latter, and by other means, is one of the first objects of this Society. The first step to so desirable an end has been but measurably secured, owing to the failure of those addressed, to prepare the necessary answers. Amidst the cares and perplexities of a period of unexampled pecuniary disaster and agricultural depression, it is not perhaps singular that a want of leisure and a want of spirit should unite to interrupt the execution of such a task; but surely there is no time when the husbandman is more imperiously called upon to make diligent efforts to cheapen and render more available every process of tillage—to add to the value of his products and animals—in a word, to adopt correct, safe and economical systems, than when the prices he receives for his products are lowest. And he, who, from his superior experience, more extended observation, scientific acquirements, or skill in tracing effects to causes, is competent to point out the steps

to such improvements, should never refuse to impart the knowledge of them to those who are less fortunate or less sagacious.

The undersigned cannot withhold the expression of his deep disappointment that the *promised* aid of many of our most skilful agriculturists has not been received. From citizens of other states and countries, such aid would be regarded as a generous expression of comity; but when the farmers of our own State are called upon by a Society whose gratuitous labors are exclusively for their own benefit—not to unlock their purses, but simply to communicate the results of their observation and experience—they are not, in the judgment of the undersigned, at liberty to regard their compliance in the light of a favor, which may be granted or withheld. Considerations of comity merely, are merged in those of philanthropy and duty. In addition to the benefits which now spring from those more or less complete surveys of our agriculture, there is little doubt that they will be referred to in after times, by those wishing to trace the early history and the progress of our agriculture. And it is pleasant to believe that when the substitution of higher and improved systems of husbandry shall enable our country to sustain the dense population which will one day inhabit it, our posterity will revert with gratitude to the labors and efforts of those who were the pioneers in those improvements. When the power of the official, the glitter and influence of mere talent, shall have long since been forgotten, he will be honorably remembered who has labored to confer substantial and tangible benefits on his fellow men.

Reports have been received, and are hereunto annexed, in relation to the agriculture of Cayuga, Chautauque, Chemung, Cortland, Genesee, Oneida, Onondaga, Queens, Richmond, Seneca, Washington and Westchester counties, all of which will be found valuable, and some of them models of what such reports should consist of.

Communications have also been received from various other States, abounding in valuable facts and suggestions. Those designed for publication will be found hereunto appended.

During the past year, communications in answer to those of the undersigned, have been received from England, Ireland, Scotland, France and South America, expressing that interest in our efforts which animates the leading and philanthropic agriculturists of all nations, in every effort to elevate their common calling. These communications, though not designed for publication, have in several in

stances contained promises of subsequent contributions on important agricultural topics. Among these, a paper on the agriculture of France, from a highly distinguished source, has been one of the most anxiously looked for. The undersigned has delayed his annual report to the latest proper moment, in the hope of being able to forward with it, documents of so much value. In this, however, he has been unfortunately disappointed.

The undersigned has also made an effort through the American Minister to Spain, to obtain some knowledge of the agriculture of that unfortunate country, as well as of the sister kingdom, Portugal. Desolated by war and ravaged by intestine commotion, as they have been for the last half a century, little is perhaps to be learned from them in relation to improved processes of cultivation; but in one important department of husbandry, and one of essential importance to our own country, i. e. wool growing, both have been for ages conspicuous. It is a question of importance to some sections of our country whether the hardy fine wooled sheep of Spain are yet to be found in their purity, and can be obtained for importation in their native country. The time should, and it is to be hoped will soon come, when the boundless prairies of our western States, instead of affording subsistence alone to their present wild denizens, will sustain myriads of these useful animals; supplying our own markets and those of the world with their valuable product. The adoption of the shepherd system will render this perfectly feasible. The Spanish shepherd, feeding and protecting his charge on the bleak heights, and amid the wild fastnesses of the Pyrenees, the Cantabrians, the Sierra Morena, and the Sierra Nevada, shows that this department of husbandry can be profitably conducted under far more disadvantageous circumstances.

The undersigned regrets to say, that owing to the difficulty experienced in obtaining the address of the eminent German agriculturists whose fame has reached this country, communications could not be addressed to them in time to obtain answers prior to his present report. It was therefore left for the corresponding officer of the ensuing year. Many portions of Germany, and particularly Belgium, afford fields of agricultural exploration, second in interest only to that of England, our mother country, and while the systems and practices of the latter are daily placed before us in agricultural publications, those of the former are comparatively unheard of and unknown.

As has already been stated to the Society, the undersigned has addressed communications to sources supposed to be the proper ones, in South America and the West India Islands in relation to the cultivation and acclimation of certain plants, the successful culture of which would be a great desideratum to this and other States. His inquiries have not reached their destination, or have failed, except in a solitary instance, to secure the attention of those to whom they were directed; as, with the exception stated, no replies have been received to them.

Respectfully submitted.

HENRY S. RANDALL,
Cor. Sec'y of the N. Y. S. Ag. Society.

AGRICULTURE OF CAYUGA COUNTY.

BY A. HOLLISTER, CATO FOUR CORNERS.

In answer to your first interrogatory, the condition of agriculture in Cayuga county, I would say, that it is improving in the northern section of the county, by a more careful system of plowing and fitting the ground for crops, also by laying under drains and otherwise reclaiming the low swails. Wheat is our staple crop, although much corn, oats and potatoes are raised. In fallowing our ground, three plowings are had, with dragging between plowings. We market our produce on the canal at Jordan and Weedsport. Our horses and cattle are not much improved. We have some good Devonshire bulls. This breed have proved good, as their stock is hardy, though rather small. We have lately got a bull from the Patroon's stock, bred by Mr. Prentice of Albany; and his calves are very good. How they will hold out is yet to be determined. We use the Cayuga county plow, improved by David Rockwell, which I think the best one in use. I have tried nearly all the plows in use between Albany and Rochester. I use a harrow made in Rochester by a Mr. Huntly, which is a very good article. It is a double drag rather than a harrow. The drags generally are the double square ones, which are very common every where. Land is worth from $30 to $50 per acre in this county. Our timber is beech, maple, bass-wood, white-wood, elm, and such other timber as usually grows up with these. To make our agriculture profitable, a smaller number of acres ought to be occupied by each farmer, and better manured, plowed deeper, and a great deal more draining done. The soil is a loam, based generally on a clayey bottom and hardpan; the soil about 12 inches above the sub-soil, and the clay or hardpan about 3 or 4 feet below the surface. It is a fine soil for either wheat, corn, grass, oats, or any of the ordinary crops raised in this part of the country.

I cannot say which is the best breed of cattle, nor what is the best

method of raising them. I have raised a great many cattle on my farm, but not with that care and attention that others have, having turned my attention principally to raising grain for 38 years in the town where I now live. I have generally summer fallowed my ground, but have raised some wheat after barley, and that is the case with most of our farmers in the north part of the county. The south part used formerly to raise large quantities of wheat, but have not of late raised as much. For information in relation to the south part of the county, I would refer you to Humphrey Howland, Esq. near Aurora. In feeding hogs, I have used potatoes boiled with barley and apples to good advantage; and in fatening cattle I have used corn ground in the cob. Our principal grasses are clover and timothy. Our rotation of crops is wheat from sward ground, corn after wheat, then sowed to barley or oats, then the land suffered to lay one year, and then sow to wheat and seed down. I have raised wheat every other year on two pieces of land on my farm for 24 years. I sow clover and timothy seed each spring after my wheat is sown, about 8 lbs. to the acre, and put on some stable manure. On one piece of 60 acres I have grown wheat as stated above, and used no stable manure. I use some lime, ashes and plaster on corn ground. Equal parts put in the hill when planting, about a gill in each hill, and the second hoeing put on about the same quantity. I have sowed lime on my meadows, but not enough to test the utility of it. I have also sowed it on my wheat in the spring. Our principal manure is from our straw and barn-yard manure, which in my opinion is best. Our most profitable roots are potatoes. The worm or fly takes our ruta baga and beets. They have destroyed 2½ acres of roots for me this season, which I had to put to buck-wheat, which I call a sorry crop on our valuable wheat lands. I will give my opinion as to the quantity of the wheat crop, in our part of the county this season: it is about ¼ short of what we expected. On the 1st of July it appeared considerably shrunk; corn backward and rather thin; perhaps not more than ¾ of a crop. Oats are fine, barley pretty good, potatoes excellent, and grass an ordinary crop. Our farmers are seeding this fall about their usual quantity of ground, but it is badly prepared, on account of the wet season. Not more than one-half is now sown, and the ground is uncommonly wet. As to wintering cattle, I would say that I have found it decidedly best to stable them. For some years I have stabled all my cattle, from 35 to 50 head, by tying them up at night, giving them hay, and putting them in the yard to straw stacks in the day time. I think I save a vast deal of fodder, and my cattle winter well. My sheep I put in a large yard, with good shelter, made for them by putting up posts and long poles on them, and rails for a roof, and covering them with straw. I have troughs made with boards nailed together, to feed oats, potatoes, or other roots in, and I let them go to water when they wish. I like the Merino, crossed with South Downs, better than any I have seen. But little butter and cheese are made for market in the north part of this county.

Our swine are the Berkshire mixed with the Leicestershire; and those we have in our vicinity are a good breed of hogs.

AGRICULTURE OF CHAUTAUQUE COUNTY.

BY T. B. CAMPBELL, OF WESTFIELD.

CHAUTAUQUE county lies on the southern shore of Lake Erie, bounding on the lake about forty miles; it is bounded on the east by the county of Cattaraugus, extending from the lake to the State of Pennsylvania, a distance of near forty miles.

The whole county was, when in a state of nature, covered with a heavy and dense growth of timber. That part of the land bordering on the lake was first settled, it being better adapted to the culture of grain than the southern portion. There is a ridge passing through this county, nearly parallel with the shore of the lake, at an average distance of some five miles from the water, and at an elevation of from five to eight hundred feet above the surface of the lake. The great leading road from the eastern to the western States, passes through this section of our county, at about equal distance from the foot of the ridge and the lake shore. Along this main road, the land is good, and well adapted to the raising of wheat, corn, oats and flax; and it being the first settled part of the county, considerable attention has recently been manifested by the farmers in the improvement of the advantages so bountifully bestowed upon them by nature. Yet even in this section, it must be admitted that our farmers are much behind some other portions of the State, where the natural advantages, quality of soil and climate are far inferior.

The timber in this section was originally chestnut, oak, maple, beech, hemlock, and almost every variety, with the exception of pine. Black walnut and butternut were to be found on all the streams and valleys. The soil is generally a gravel and loam, extremely easy to till, and produces abundant crops of grain, particularly corn. Wheat does well, and perhaps may continue to, unless over cropping shall be pushed too far. This soil is well adapted to the culture of clover; and I have no doubt but the introduction of the system of rotation of crops, and the use of clover as a manure, will be attended with the best results here. Those who have tried it, are entirely satisfied to continue the process, and consider it a great improvement.

The high lands of this county are different from those described above. The timber on them is generally beech and maple; the climate more frosty, and in the winter generally more subject to snow. The soil is rich, but rather wet, consequently well adapted to grass and the growth of stock, butter and cheese, &c.

The southern tier of towns in this county, bordering on Pennsylvania, are timbered with pine to some extent, and the soil more loamy than the middle section.

The products generally of Chautauque county, and on which the agriculturist depends for profit, are cattle, horses, sheep, wool, butter and cheese, and in the north part in some measure, pork, grain and fruit. There is, perhaps, no portion of the State, or even of the United States, where cattle, horses and sheep, are more healthy

and do better, than in this county. Although much remains to be done to improve the breeds, yet many of our best herdsmen are already doing much towards an object so much called for. The Durham cattle for beef, and the Devons for work, are the most approved here, and a cross of those breeds with our native cows, has been found to produce the best of stock. The stock of sheep has been much improved within the last few years, by the introduction of the South Downs; a cross of that breed with our native ews produces the best and most profitable kind of sheep for our climate. In relation to horses, there is no kind of stock so much neglected, or in which improvement is more called for in this county. I hope the time may be not far distant, when this subject shall receive that attention its merits demand.

In relation to the feeding and fattening of cattle, the usual practice is to let them run in the common pastures in summer, and after the winter commences, stable them and feed on roots and corn ground *with the cob*, which is, in my opinion, the most profitable way of feeding corn to all kinds of stock, except swine.

The high lands of this county (or the beech and maple land,) are very natural to grass; and white clover will appear in all places as soon as the land is cleared. The land is rich, and I believe would produce good crops of winter wheat, if the farmer could pursue some course of cultivation that would prevent the destruction of the wheat by the frost of winter. This seems to be the only obstacle in the way; the first crop after the land is cleared, is generally abundant, but after the land has been plowed, the crop of winter wheat is extremely hazardous.

Fruit trees are generally good and productive in this county, particularly in the north part. Near the lake the *peach* may be found in abundance, but not on the high lands of the southern section. There is not much attention bestowed on the cultivation of fruit as a source of profit. The blight in pear trees is becoming general, and in all probability will continue.

AGRICULTURE OF CHAUTAUQUE COUNTY.

BY JABEZ BURROWS, OF MAYVILLE.

THE county of Chautauque consists mostly of high land, except the tier of towns bordering on Lake Erie, which consist of a rather dry, gravelly soil—very productive of most kinds of grain—particularly wheat, corn, oats, &c. But I think the wheat crop begins to fail; I should judge, from over cropping; but residing myself on the high land, others are better acquainted than I am with the facts. The greater part of the county is high land, say from six hundred to one thousand feet above the level of Lake Erie; and the soil is a rich, moist loam, rather wet than otherwise, very natural to grass, and par-

ticularly so to white clover. A small patch cleared any where in the woods, within the course of two or three years, will exhibit a complete bed of white clover, without any culture or seed. I consider Chautauque a first rate grazing county, well adapted to dairying and the raising of cattle, sheep, &c. It is not adapted to the culture of winter wheat, as winter grains are apt to be thrown out in the spring by the frost, and there appears to be a lack of the necessary proportion of lime in the soil. Spring wheat succeeds much better, producing, say on an average, ten to twenty bushels per acre. Corn generally succeeds well, particularly the earlier kinds. Potatoes, oats, and barley do well. Flax is a very profitable crop with us. You will seldom see a poor crop of flax, either in growth, seed or coat. The seed itself, I consider equal in value to a fair crop of spring wheat. Rye and buckwheat do not succeed well. Our soil on the high land, after going down from eight to sixteen inches, consists mostly of a hard subsoil, though not impervious to the plow, and I should judge contains a portion of lime. I have no doubt but the use of the subsoil plow would make an important improvement in our crops, although I have not known it tried. Sheep and cattle do well and are very healthy. I have never known a distemper among sheep except in one instance, where I bought a flock that had been kept in a poor johnswort pasture. They were attacked with swelled lips and sore mouth, and I lost near one hundred; but an application of tar to the mouth and lips checked the disease and cured the sick. Our produce consists chiefly of cattle, horses, butter, cheese, pork, wool, &c. Our wool is generally of a middle grade.

The finest Saxon sheep do not do as well as a coarser grade. A cross of the South Down with the Merino, or our finest native sheep, do best for our climate. They make a hardy race and are good breeders. The South Down take fat so easily that I think they will become valuable for the olein and stearine factories, especially while our meat market is so poor.

AGRICULTURE OF CHEMUNG COUNTY.

BY E. C. FROST AND A. J. WYNKOOP.

Henry S. Randall, Esq.—Having had the honor of receiving your printed circular, and living in different towns, we unite in the following answer in relation to Chemung county.

There is much of interest connected with the early settlement of the luxurious valley of the Chemung. While western N. Y. was yet in possession of the barbarous sons of the forest, Gen Sullivan, and those under his command, when on their expedition against the concentrated remnant of the Six Nations, in 1779, were highly pleased with the picturesque and fertile valley of the Chemung, or "Big Horn," the Indian name of this beautiful river; and on their return

from destroying the orchards and cornfields of these warlike tribes, pictured this valley in such glowing colors, that it attracted the attention of the older settlements, and soon emigrants from the eastern counties in this State and from the lower counties in Pennsylvania, took up their abode in the beautiful but wilderness valley of the Chemung; and now the sturdy settler's axe echoed from hill to hill, where previous to Gen. Sullivan's expedition, nought was heard save the savage war whoop, or the panther's fearful cry.

These early settlers endured great privations and encountered many difficulties, during their first few years residence in this then vast wilderness. Among the most prominent was the want of mills; these hardy pioneers had not only to hew, or split from trees, the floors and coverings of their log cabins, but were compelled to have recourse to the pounding block, to prepare the first corn raised for food. The nearest mill at this period was at Wyoming, a name and place immortalized in the early history of our country, by the bloody massacre of its inhabitants.

The rivers afforded the only highways through this almost unbroken wilderness, and the only means of access to this mill, was by the slow and tedious navigation of canoes, which were pushed by the men more than one hundred miles against a strong current, to bring a scanty supply of the staff of life to their famishing families.

To obviate these difficulties, Maj. Wynkoop, one of the earliest settlers of the town of Chemung, which is the most eastwardly in the county, in the second year of his residence here, from the mountain rock roughly broke out millstones, and erected a flouring, or as it was more familiarly called a "grist-mill." This was a source of much joy and comfort to the people, and greatly facilitated the settlement of the country.

The pioneers, following the route of Sullivan's army, commenced the settlement here, which soon extended up the river; the alluvial lands, which were very productive, were of course first selected, and consequently the settlement was confined to the valley, which opens from one to two miles wide.

The alluvial lands are under a tolerably good and improving state of cultivation; the hills adjoining the river are high, and upon their face somewhat barren, but gradually recede and are mostly susceptible of cultivation; the back lands are high and rather broken, producing fine wheat and grass, and admirably adapted to grazing. A considerable portion of this town has but recently been settled, and there are lands yet in market, which offer inducements to settlers of enterprize.

The buildings of the original settlers, along the river, are chiefly replaced by tasteful farm houses, denoting prosperity.

It was in this town that Gen. Sullivan first commenced hostilities with the Indians, and burned a small village from which the Indians had fled; they were pursued by the division under the command of Gen. Hand, and brought to an engagement at a narrow ridge called Hogback hill, from which ambuscade they were soon driven, and the division returned to Fort Sullivan. It is not strange that the

original occupants of this fertile valley, where corn grew almost spontaneously, and game and fish were abundant, should have left it with great reluctance.

The town of Elmira lies west of, and adjoining Chemung, being separated by Butler's (now Baldwin's) creek, at the mouth of which stream, on one of the largest alluvial flats along the river, the celebrated battle of "Newtown," between the forces under Gen. Sullivan, and the Indians commanded by Brant, took place; they gallantly defended their fair inheritance, and for a brief period checked Sullivan in his onward march, but were defeated and dispersed with considerable loss. On this battle ground, one of the earliest and most prominent settlements was made, and at this day, when overlooking the splendid fields and luxuriant crops that are usually to be seen on this battle field, we cease to wonder that those who had perhaps for ages, in peace and quiet here raised and gathered their corn, should have fought with a bravery not common in savage warfare, in its defence.

The next prominent settlement was Newtown, now "Elmira," (the county town of Chemung.)

In 1794, lots were laid out and the village commenced by Guy Maxwell and Samuel Hepburn, on the north bank of the Chemung river, which is here intersected by the Chemung canal. Elmira is beautifully situated upon a fine gravelly plain, and is now a highly promising village, containing about three thousand inhabitants, and from its fine, healthful and advantageous situation, being surrounded by a rich and highly cultivated country, bids fair to become an important inland city. It is the chief market, not only for this, but for the adjoining counties, both in this State and Pennsylvania.

The facilities of water communication secure to this town the salt and plaster trade of northern Pennsylvania; large quantities of these indispensable articles are annually sent to the latter market, down the Chemung and Susquehannah rivers, in arks cheaply constructed for that purpose. When the Elmira and Williamsport Rail-Road shall be constructed, this will become a great mart of exchange; Pennsylvania furnishing iron and coal, and receiving therefor salt and plaster.

Elmira, lying on the north side of the Chemung, has not as much alluvial land as most of the towns through which the river runs. The plain upon which the village stands, extending to the north line of the town, is highly productive and under good cultivation; this land was covered originally, chiefly with pitch or yellow pine, and in the early settlement of the country was considered worthless; but since the discovery of gypsum in the lake country, which is generally used upon lands of this description, being a loam with gravel interspersed, these have proved to be the most valuable lands in the country, and are preferred by many experienced agriculturists to the alluvial lands. With the aid of one bushel of plaster to the acre, a fine burthen of clover is obtained, which soon makes them highly productive; the wheat and hay grown upon these plains, as also upon

the hill lands, is usually of a better quality than that raised on alluvial lands.

The eastern part of Elmira is hilly, but generally productive, and rapidly improving. New Town creek, or as it was called by the Indians, "Kauga," the river, and smaller streams running through this town, afford an abundance of water power; indeed there is no want of water power in this county, and Yankee enterprize and capital will find here abundant and profitable employment.

The Chemung canal, running through this town and county from north to south; the navigable feeder, extending from its junction at Horseheads, (now by a misguided taste called Fairport. This place is made memorable by the circumstance of Sullivan's causing his pack horses to be killed here on his return from the pursuit of the Indians, in the expedition above spoken of. This name, connected as it is with the early history of the country, should not have been changed,) through part of Elmira and Big Flats, to the rapidly growing and important village of Corning, in Steuben county, at its western termination, affords great facilities for marketing all the products of this luxurious soil; indeed, the immense coal trade, the rapid and healthful growth of the latter town, connected as it is by the Blossburg Rail-Road, with the vast and inexhaustable coal fields of Pennsylvania, would justify the conclusion that Corning will of itself, at no distant day, furnish a market for much of the surplus products of this region of country.

Big Flats. The name of this town, situate in the southwest corner of the county, is sufficiently descriptive of that portion lying immediately adjoining the river; the alluvial and table lands being extensive and very fertile, and generally under a good state of improvement. The hills immediately adjoining the river are high and rugged, but nevertheless are chiefly susceptible of cultivation, at least for grazing purposes. As you depart from the river, the country, although broken and hilly, produces fine wheat and grass, is well watered, very healthful, and is rapidly settling; the navigable feeder of the Chemung canal and the Chemung river passing through it, afford great facilities for marketing its surplus products.

Southport. This town lies on the south side of the river, opposite Elmira, and contains probably some of the most choice lands in the State; the alluvial and table lands are from two to five miles in width, highly improved, and chiefly devoted to the growing of grain, which yields a bountiful harvest, particularly corn, oats and potatoes; the back lands partake largely of the qualities above described.

Veteran is adjoining Elmira on the north, and directly upon the canal; the soil has more clay in its composition, (as have all the northern towns;) produces fine wheat and grass, and fruit in greater abundance than the river towns; it is rolling, and chiefly under a good and improving state of cultivation. The canal and Catharine creek running through this town, afford an extensive water power, on which there is in operation many lumbering and manufacturing establishments; and the flourishing village of Millport has sprung up since the completion of the canal, where a few years since it was a dreary

wilderness; active enterprise and prosperity are the leading characteristics of this town.

Catlin lies directly west of Veteran, and contiguous to the Chemung canal; the settlements are generally new, but rapidly progressing; the land produces well and is advantageously situated, markets being easy of access. This town is broken and hilly, but generally well adapted to the growing of wool and stock; lands are cheap and plenty yet in market.

Dix is north of Catlin and west of the canal, extending to the head of the Seneca lake, and adjoining Steuben county; is high and rolling; part of this town is under good cultivation, and is productive; it is favorably situated with regard to markets. The growing village of Jefferson is in the northeast corner of this town, from which steamboats depart daily for Geneva.

Catharine is situated east of Dix and north of Veteran, and is in form of a basin, embosoming the little romantic Lake of Cayuta. Johnson settlement, the first of importance, was commenced in 1795, chiefly by emigrants from Fairfield county, Connecticut, who brought with them the industrious habits and intelligence characteristic of their native State. The buildings and other improvements are of a neat and permanent character, and denote the prosperity that every where follow the industrious and economical habits of the New-Englanders.

This town is well adapted to the growing of wheat and grazing. The flourishing village of Havana is located nearly upon the ground where stood the Indian village of Catharine, the former residence of the Indian Queen Catharine Montour, from whom the town of Catharine derived its name. This Indian village, at the time of Sullivan's expedition, contained thirty houses; the Indians were much attached to these their favorite hunting grounds. Deer and other game were abundant, and the fine salmon trout taken in profusion from the inlet, had strong attractions for a people whose chief object in life was the enjoyment these luxuries afforded.

The scenery, viewed from the high lands in Catharine and Dix, looking down upon the villages of Havana and Jefferson, (both of which are flourishing towns, the former being the chief market town of the northern part of Chemung and the adjoining towns in Tompkins county—and from the latter is shipped much of the produce from parts of this and Steuben counties,) and the chrystal and never frozen waters of the far-famed Seneca, bordered on either side by sloping fields as far as the eye can reach, forming together a landscape of surpassing beauty, which can only be appreciated by being seen. The reasons why the waters of the Seneca are never frozen, is worthy of scientific investigation. It is generally supposed that this beautiful lake, which is navigable the whole winter, is supplied by subterranean springs, thus keeping the water too warm to freeze. Reflection has convinced me that this cannot be the cause; but the fact that the depth is so great that the bottom, in places, has never yet been sounded, satisfactorily accounts for this phenomenon. It is known that cold condenses water, and that it consequently sinks, giving place to that below; and our winters or cold weather, not conti-

nuing long enough to chill the great depth of water, it does not freeze.

Cayuta and Erin, situated in the east part of the county, are new but rapidly settling, and there is much valuable land yet in market, offering great inducements to settlers, which, with proper culture, would soon become valuable either for grazing or grain; these towns are somewhat hilly, but generally susceptible of cultivation; large quantities of maple sugar are manufactured here annually.

The condition of agriculture in this county is improving as rapidly perhaps as other parts of the State, and in some portions of the county may be termed good.

In the early settlement of the country farming was connected more or less with lumbering, and consequently neglected, and in many instances made a secondary object; as pine timber has disappeared, more attention has been given to farming, the land has been better tilled, more system practiced, improved implements are used, and larger crops are harvested.

Horse teams are generally used, except on new farms, and the small or common size, hardy, well formed horse is preferred.

The produce is chiefly marketed via canal, as is also a portion of the lumber, but the principal part is sent down the Susquehanna to Philadelphia and Baltimore markets.

Sheep and cattle are usually driven to eastern markets in the summer and fall, and are fed chiefly on grass; a few, however, are stall fed; no sheep are grain fed, except for home consumption.

There seems to be a diversity of opinion with regard to cattle; some prefer the Durham, other a cross of the Devonshire with our native breed but some of the most experienced breeders and feeders prefer the native stock, especially on bleak situations.

Sheep, a cross of the Merino with our common breed, is generally preferred, they are more hardy, larger carcass, and yield more wool than the Saxon; flocks of the latter have been introduced, but not generally approved.

The Berkshire are the favorite breed of swine, which are fattened on steamed potatoes, pumpkins, meal and corn.

As to what changes are necessary to advance the prosperity of the county, we would remark that agriculturists should have a thorough and practical knowledge of their business, and should feel its importance to the community, and apply themselves strictly to its pursuits; should produce and manufacture more and buy less, always keeping the debtor side of the account in their favor, or adopt the ready pay principle.

The completition of the New-York and Erie Railroad, giving the farmer a ready market at all seasons of the year, would doubtless advance the agricultural interests of this county.

There is almost every variety of timber in this county; in some portions of it extensive groves of valuable pine yet remain.

The Idon and Livingston county plows are in general use; harrows of all kinds are used; the old fashioned three square are most nume-

rous. The cultivator, horse rake, and barrow-drill are used by a few of the best farmers.

AGRICULTURAL SCHOOLS.

BY A. J. WYNKOOP.

SINCE writing the above, I have been reflecting upon the importance of agricultural information, or rather agricultural education, being more generally disseminated; and would respectfully suggest for the consideration of the N. Y. State Agricultural Society, the propriety of recommending the establishment of an agricultural school in each county, connected with the societies already formed.

The prosperity of our State and the perpetuity of our form of government so essentially depend upon the proper, thorough and practical education of the great mass of the people, that it does seem to me that every philanthropist and well wisher of the human family should feel an interest in this important subject. Much has been done within the last year to ameliorate the condition of the unfortunate slaves of appetite, in the temperance reformation; and if a few will work with the same zeal, to awaken the public mind with regard to the importance of a thorough agricultural education, doubtless it may be accomplished.

There is a radical defect in the academical and collegiate institutions of our country in this particular, that while attending to the cultivation of the mind, the exercise, indispensable to the formation of a healthy and robust constitution, is essentially neglected.

The establishment of county agricultural schools will remedy this important defect, giving to the pupil exercise in the open air, which is indispensably necessary to the formation of a healthful constitution, while acquiring an essential part of an education, a knowledge of the best method of cultivating the soil. There is another and perhaps not less important error, too common in the high schools in our country, viz: boys, both from inclination and the foolish fashions of the day, early learn, what they are never willing to forget, that it is ungentlemanly and beneath the character of a freshman or sophomore, to perform any manual labor, and if the parent or guardian has wealth, they, as a general thing, help instil into the minds of the youth under their direction this idea, alike destructive to future usefulness and happiness, by furnishing the means necessary to enable them to live while at school without labor. The idea that it is dishonorable to labor, is at war with the best interests of the individual and the spirit of our free institutions, and should be the very last instilled into the minds of those destined soon to exercise the responsibility of a free and independent citizen of this glorious republic.

There are many other errors, which the limits of this communication will not permit pointing out.

The remedy for these evils, is the establishment of agricultural schools throughout our State, where, while pursuing all the varied branches of science, the important art of agriculture will be acquired, the health of the pupil preserved, and a constitution formed that will fit them for future usefulness in their various pursuits in life.

There are many other important recommendations to this plan of education, which ought to have weight with those who have the care of youth: for the present, let the following suffice.

1st. The school being located in the country, the pupil would be removed from temptations which in towns and cities ruin thousands.

2d. While taking the exercise necessary to health, they could nearly earn their support, which in these times of pecuniary embarrassment, is worthy of consideration.

Suffice it for the present, to presume that the above reasons are sufficient to warrant the experiment, if it is at all probable that thus much can be accomplished. The inquiry is, how can this be done?

1st. Let the N. Y. State Agricultural Society recommend to the several county societies to apply to the Legislature for the passage of a law, authorizing a loan to the several county societies, from the common school fund, of a sum sufficient to purchase a farm of 50 or 100 acres of good land, on condition that the society raise an equal amount and pay the interest upon the loan annually. This will secure a farm and erect the necessary buildings.

2d. Let the general constitution and by-laws for these associations be sanctioned by legal enactments, fixing the terms of admission to membership, the annual tax for each pupil attending the school, &c. &c.

Sufficient should be raised in this way to pay teachers, and the necessary labor, over and above that performed by pupils in carrying on the farm. The pupils should be required to labor, or in other words, study agriculture a certain number of hours each day, under the direction of a scientific and practical farmer; the proceeds of the farm to be used in boarding and defraying expenses. The pupils would not only be benefited, but these would be emphatically schools for the instruction of all the farmers in the State.

These hasty and undigested thoughts are not submitted with the expectation that they will be adopted, but with the hope that some able and experienced pen may be employed in maturing a plan that will eventually establish schools, wherein the sons of the farmers throughout the Empire State, may obtain an education which will fit them in every sense for the faithful discharge of the high and responsible duties of American citizens.

AGRICULTURE OF CORTLAND COUNTY.

BY HENRY S. RANDALL.

CORTLAND county occupies a central position in the State of New-York. It is in the form of a parellogram, 20 by 25 miles in extent, and is divided into eleven towns. It has a population of 24,605 inhabitants, 6,028 of whom are engaged in agriculture, 1,248 in manufactures and trades, 51 in commerce, and 106 in the learned professions.

Aspect of the County.—Two small rivers traverse the county; one of them, the Tioughnioga, through its entire extent from north to south; the other, the Otselic, passing through two townships in the southeastern portion of it. These streams and their numerous tributaries run through valleys of considerable extent. That of the west branch of the Tioughnioga, extending from Onondaga county, to the junction of that stream with the east branch, a distance of twelve miles, is from two to five miles in width, and from this point it sweeps off to the southwest to the line of Tompkins. From the point of junction of these two streams, radiate other valleys in various directions, making access to this central point, which is occupied by the shire town, easy of access to all portions of the county. Between these valleys the land rises into gently sloping hills, usually of no great elevation, and arable in almost every instance to their very summits. The water of the streams is clear and pure, and in the wells essentially purer and more palatable than that of contiguous counties lying north and west. There is no stagnant water and no swamps, or other "waste lands" of any considerable extent in the county.

Soil, Geological Appearances, &c.—Cortland occupies the slaty region, which is superincumbent on the limestone of Onondaga, and which with a dip to the south-west, passes under the coal beds of Pennsylvania. The soil is formed by the disintegration of silicious or quartzose and aluminous slate; the aluminous forming the higher, and the silicious the lower lands. The only primary rocks are boulders of granite, which are found in some abundance on our hills. Cortland is not rich in minerals. No metallic ores are found in it. Thin and detached veins, or rather pieces of coal or lygnite (supposed by their discoverers to be the former,) have been found in some of the hills in the northern portion of the county.

The most singular geological feature in the county is the "marl ponds," in Cortlandville. There are several of them which are from 25 to 60 acres in extent. The "marl lime" obtained from them, on burning the marl, is white, and sufficiently pure to form durable plaster. It has been analyzed and found to contain 65 per cent of pure lime, the residue earthy and vegetable matter. There is little doubt that this marl would form a valuable fertilizer, particularly on a soil which, like ours, is deficient in lime. The marl in these pits seems to be inexhaustible in quantity, and that which mingles with the soil

on the margin of the ponds, might be obtained at little expense to be applied to our soils. I venture to predict that it will at some future day, be extensively used for that purpose.

The soil in the valleys of the east and west branch of the Tioughnioga, and on the main stream below their junction, is esteemed best in the county. That on the west branch, forming the towns of Cortlandville, Homer and Preble, ranks first. In much of it hardpan is not found, or only at great depths. It is thickly scattered over, and literally "filled" with slaty pebbles, or "cobble-stones," rounded by attrition, and which on fracture, exhibit numberless petrifactions. In mucky "bottoms" where these stones are not found, or are less frequent, the soil is less favorable for grain crops. On the hills hardpan is more common, and is much nearer the surface, rendering some of them wet, and of little value except for grazing.

The price of land in the river valleys and the low hills adjoining them, is from $30 to $60 per acre; remote from these valleys, it is from $10 to $30.

Timber.—The dry lands of the county were originally principally occupied by maple and beech. Elm, hemlock, bass-wood, ash, chestnut, &c. are also abundant. Chestnut, elm and ash, are used extensively for rails, though the supply, if the same improvidence continues to be manifested, will soon begin to fail. Red beech and hemlock are often used for posts. There was originally some pine in the southern section of the county, but it has nearly disappeared. Boards for the construction of barns, fences, &c., are sawed from hemlock. This timber, when it grows on high, dry soils, is a white solid wood, and as valuable for such purposes as pine. There is much of it of this quality in the county, and shingles of a good quality are sawed from it. It is somewhat remarkable that the white oak, ash and chestnut of this country, lacks the strength and durability of the same varieties in New-England. Elm is preferred to oak here, for all purposes where strength is required. The cultivation of the locust has been undertaken by numerous individuals, but the "borer" is rapidly putting an end to all of these efforts.

Present condition of its Agriculture.—The present condition of agriculture in Cortland, is exceedingly various in various parts of the county. In the better portions of it, the husbandry will compare favorably with that of any portion of the State in which the writer of this has chanced to travel; and stands in marked and honorable contrast with that of many sections naturally possessing far superior advantages. There are few improvements in agriculture which have not here found followers—few improved breeds of stock which are here reared—few improved agricultural implements which are not here in use. These remarks, unfortunately, however, will not apply to the whole of our territory, or to the whole of our population, even in the most favored sections of it. And it cannot be denied that we have, if not an unusual, at least a very undesirable proportion of poor lands, and of unskilful and improvident farmers.

Among the changes which have taken place within the last few years, which have tended to increase the agricultural prosperity of

the county, one of the most prominent is a more natural and judicious "division of labor." Instead of the attempt by each farmer, to raise every animal and product necessary for his consumption, he has found it better to turn his attention to those to which his soils are adapted, and exchange his surplus with those who can profitable raise the others. By this course, high and thin soils have been devoted to sheep, for the purposes of wool-growing; soils of a medium quality, but which owing to inequalities of surface, wetness or stoniness, are less arable, have been devoted to dairying or grazing; and our richer valley lands have produced that surplus of grain required for the consumption of the others.

A decided improvement has also taken place in the rotation of crops, and in the method of seeding.

Summer fallowing, a practice which the average product of the wheat sown after it will not justify in this county, has given place to fallow crops.

Manures are more carefully increased, and more judiciously applied.

Improved breeds or *selections* of animals have, to a considerable extent, taken the place of unimproved and unselected varieties and families.

Agricultural Produce.—Cortland is a grazing county, though in the principal valleys winter wheat, maize, and other grain and root crops are successfully cultivated; and on the hills, spring wheat, the coarse grains, flax, roots, &c. It must be confessed, however, that for the last few years rust has rendered both spring and winter wheat to a certain extent, a precarious crop. In 1839 the produce of the various crops was as follows:—

100,765	bushels of	wheat.
29,935	do	barley.
277,381	do	oats.
2,730	do	rye.
18,015	do	buckwheat.
85,344	do	Indian corn.

Other Products.

182,408	pounds of	wool.
181	"	hops.
699	"	wax.
575,406	bushels	potatoes.
59,562	tons	hay.
13	"	flax.
429,690	lbs.	sugar.
6	"	silk cocoons.
10,917	cords	wood.

Articles enumerated by their Value.

Product of the dairy,.....	$137,367
" orchards,.....	6,308

Home made goods, ...	$87,945
Poultry, ...	12,798

Live Stock.

5,734 horses.
33,759 neat cattle.
98,760 sheep.
19,043 swine.

Animals.—Of neat cattle, the native stock forms the principal number. Notwithstanding the superior properties claimed by foreign breeds over this variety, and notwithstanding our native stock is evidently susceptible of, and requires, vast improvement, it has become quite too fashionable among the class of breeders, to speak of it in terms far more contemptuous than the facts will warrant. The best ox slaughtered in this State for years, was a native ox. The fact that this animal was brown in color, with a white face, has led those who attribute every thing to "blood," to claim for him a Hereford descent. This is a misfortune which our native breed ever labors under. Had Mr. Rust's ox been red, the same class of observers would have discovered indubitable evidences of Devon parentage; had he been spotted with white, the Durhams would have received all the honors of his paternity. I have investigated the subject of this ox's pedigree; he was reared in Madison county, and not a particle of proof or rational probability exists to show that he had a drop of Hereford, or any foreign blood in his veins, other than that introduced by the early settlers of our country.

Excellent dairy cows of the native breed may be found in our county, probably excelling in this respect any other variety, except the different families of the Short Horns. Such being the facts, though the American farmer should not give up the attempt to improve both by crossing and selection, he may be excused if he expresses a little contempt for the ignorance or impertinence of the assertion, that our native breed neither do nor can be made to possess any of the points of an improved variety.

The Durhams were introduced into this county nearly twenty years since by means of a half bred bull. The animal failed to attract notice; and prejudice against his color prevented him from being extensively used. He was soon disposed of; but his introduction had this valuable effect, that the few animals sired by him, by their undeniable superiority both at the pail and in the shambles, prepared the way for a more cordial reception of this breed in after years.

The *Yorkshires*, or "pumpkin rumps," were next introduced, called Durhams, or Teeswaters, by *sellers*. Though to an unpracticed eye a showy breed, a more worthless one has never obtained entrance into the yard of the farmer. Bad provers, bad milkers, with blue and tasteless flesh, and from their conformation producing their young with difficulty and danger; there is scarcely a point about them which should characterize a profitable variety.

Holderness, or unimproved Short Horns, were brought into the county about ten years since. The coarseness of the old Short Horns had been modified in the bulls introduced, by an admixture of other blood. One was crossed with our native stock, one with the Holsteins, imported by Consul Jarvis, and one with some Ayrshires introduced into Connecticut, by Henry Hills. All of the bulls were good stock getters with our native cows, and particularly the last. Their produce were uniformly superior to their dams, and characterized almost invariably by good milking properties.

Devons have been introduced into the county by importation and otherwise. On our thin hill lands they might have succeeded; but no one has been found to test their qualities in such a situation. On our valleys their size has been objected to, and it has been thought that our rich valley lands would sustain a larger, and in other respects, a more profitable breed. There are those, however, and the writer of this among the number, who are partial to a "dash" of Devon blood in the larger varieties. It gives symmetry and compactness—hardiness—a depth of coloring which will not disappear even in the most remote crosses, and usually ensures a good gait, and a well raised head.

Leicesters—From the stock of the late Daniel Adcok of Otsego, have obtained an extensive footing; but they have been in all instances crossed with the improved Short Horn. They are somewhat smaller than the Short Horn, beautiful handlers, good milkers, and usually delicate and "fashionable" in the forend. The cross between the Durham and Leicester is either an unusually good one, or it resulted most fortunately in those few animals of this cross, by means of which this sub-variety have been introduced into Cortland. There are not wanting those who in the Leicester deeply crossed into the Durham, (say one-sixteenth Leicester to fifteen-sixteenths Durham,) fancy they discover a mellowness in the handling, a softness and "silkiness" in the coat, a delicacy and "style" in the head* and in the manner of carrying it, which are rarely found in the thorough bred Durham. Bulls of this family have received most of the prizes at our county fairs.

Improved Short Horns—Have been introduced from the yards of Messrs. Rotch, Van Rensselaer, Powell, &c. Here, as elsewhere, when on *good soils*, their career has been one of uninterrupted success. There are in the county a few full-bloods and several hundred head of grades, (betweed the Durham and the natives,) and the latter command prices which demonstrate beyond the possibility of denial, the value of such a cross. Those possessing only half of the Durham blood, sometimes present a combination of valuable points which would almost entitle them to compete with the thorough bred animals, and every succeeding cross *towards the Short Horns*, if judiciously conducted, increases their value. The grade cows are almost uniformly plentiful and steady milkers, and on the average, i. e. taking an equal number of *untried* animals from them and the

* Francis Rotch, Esq. perhaps the most distinguished judge of fine stock in the State, when looking at one of these crossed-bred cows, declared to the writer of this, that she "was the finest animal forward" he had ever seen.

native stock, the grades will always excel the natives in this essential property. It is amusing to hear theorists object to crossing distinct breeds, on the ground that it is a violation of certain (it would be difficult to say how established) canons of breeding, where undeniable facts and the sure test of experience prove so conclusively the propriety and the advantages of such a course. So long as the farmer can improve his stock by crossing with the Durham, and so long as each additional cross increases the value of the produce, his course is a plain one, despite theories. And I am willing to go a step further. I have not a doubt that a *sufficient number of judicious crosses* with *properly selected natives*, will produce a variety in all respects, certainly for all practical purposes, equaling the pure Short Horns, and in every essential property excelling many of those laying claim to the longest pedigree. The very fact that every breed which now exists has been *formed*, (because all descended from *one* parent stock,) proves that the thing can again be done. And the most valuable variety of all, the Short Horns, has been formed within, comparatively speaking, a few years; and one of its most distinguished, most saleable, and most highly prized families, (a family which nearly all the best Short Horns of this State are descended from,) is the produce of a *late* cross with the Galloways! The "bump of veneration" must be higher on the heads of most Americans, than it now is, to enable them to credit the assertion, that no other cow can be found, and that one cannot be found even among our native breed, who can mingle blood with, without irrevocably degenerating, the aristocratic Durham, or that no other man but Charles Colling will ever be found capable of making the proper selection for such a cross.

Horses.—The horses of Cortland are usually of no distinctive breed, and as a general thing of inferior value. The price of service, more than the quality of the stallion, has been generally consulted. For the last three or four years rather more attention has been given to this valuable kind of stock; but there seems to be a great deficiency through this county, as well as most other portions of the State, of those active, strong, but clean boned stallions which are large and strong enough for heavy labor, and active enough for the road.

Sheep.—The breeds of sheep in the county are the native crossed with the fine wooled; the English long and middle wooled varieties, and the Merino and Saxon. The first named are a strong hardy sheep, affording a good wool for domestic purposes—and they constitute a variety well suited to the exigencies of the situation in which they are generally found. The English long wools, under the various names of Leicesters, Cotswolds, Bakewells, &c. are too remote from markets where their mutton can be disposed of, to form the most profitable variety here.

Some fine animals of the long wooled varieties have been imported from England into our county, but have failed to meet the expectations of their purchasers. The middle wools, the South Downs, are preferred to the last named, but in their *pure state* do not, particularly when they have reached four or five years of age, pro-

duce a quantity and quality of wool which render them the most profitable for the purposes of the *wool grower*. The writer of this has set on foot the following experiment. He has taken one cross of South Down on the Merino, and then *bred back towards the latter*. His object has been to attempt to engraft something of the South Down form, feeding and nursing properties and hardiness, on the Merino stock, without sacrificing the weight and fineness of wool of the latter. He does not pledge himself that the experiment will succeed. He will only say that thus far his expectations have been realized. Time will develop the rest.

The Saxons, on the introduction of that variety, were early engrafted on the Merino flocks which had previously been introduced into the county; and I know of no instance where those who took that step do not now deeply deplore it. The increased fineness of the wool does not offset against the diminution in its quantity, and the impaired constitution or hardiness of the animal.

There are few of the old stock of pure Merinos left in the county. At the present moment they are undoubtedly the favorite breed, and the wish seems to be universal among our flock holders, to go back to this variety.

Swine.—Berkshires, China or Grass breed, some large English hogs called Hampshires, a good variety not claiming any distinctive appellation, (being the improved native hog,) and finally the "Landpike," are all found in our county. The Berkshires are preferred by many, and by the writer of this among the number; but a majority object to them on account of their small size. Berkshires crossed with large native sows, are a popular sub-variety.

I regret to state that the fine imported Neapolitan sow, presented to the State Agricultural Society by James G. King, Esq. and which by a vote of the Board, was placed in my hands to test the comparative value of the breed, perished before reaching my residence, in consequence, probably, of injuries received on ship board.

Cultivation.—In the valleys, a hoed crop is usually the first in the rotation. With some, this is succeeded with barley, and then winter wheat with grass seeds. Others substitute spring wheat, peas, or oats for barley for the second crop in the rotation. There are not wanting those who take crop after crop of the same kind from the land, as oats for example, without paying the least regard to rotation.

On our hills, potatoes, spring wheat, oats and buckwheat are the principal crops; on the colder and thinner soils, the two last named are the staple commodities. On the hill lands of Scott, which are of medium quality, the culture of flax has recently been introduced with decided success, and has formed a profitable source of investment to those engaged in it. Probably one thousand acres of it was cultivated during the past season.

Roots are cultivated for the winter food of neat stock, horses, sheep, &c., more than formerly. Neat stock, and sheep especially, are kept in much finer and healthier condition by receiving a portion of roots for their food, than when confined to hay alone, and it is thought with no increase of expense. Roots are peculiarly conducive to

the growth of *young* animals. Potatoes and ruta bagas are the principal varieties cultivated, to the growth of both of which our soil seems to be well adapted. I raised 1,040 bushels of the latter, in the summer of 1840, on a single acre of land. The past summer I adopted the method of covering, principally cultivating and harvesting my potatoes with the plow, subsequently confining the store hogs in the field to dig those left by the plow. To those who cultivate the potatoe largely, as a feeding crop, I would strongly recommend this practice.

Meadow and pasture lands are not generally suffered to lie as long as formerly without plowing. It was noticed during a drouth, which was felt severely by our grass lands during the past season, that newly seeded lands suffered far less than old meadow and pasture. Gypsum is used extensively as a top dressing. It is principally obtained from Jamesville, in Onondaga county.

Summer fallowing, as has been remarked in a former part of this article, has given place pretty generally to fallow crops.

In do not know that plowing is more imperfectly performed here than in neighboring counties; but I am satisfied that it is not usually carried deep enough, and in other respects, well enough performed for the profit of the farmer. The surface is merely "skinned," and much of the riches even of that thin surface is left locked up in the lumps and clods which have escaped disintegration. Four inches is probably the maximum depth of plowing in this county, and at that depth an *artificial pan* is formed in our old fields, impermeable to a great extent to the roots of vegetation. If, instead of inquiring so assiduously for "wide cutting plows," our farmers would select those which "cut deep," they would be the gainers by it.

The principal grass sown is timothy. White clover springs up spontaneously in great abundance on all our lands, even after summer fallowing. Small quantities of red clover are sown by some, mixed with timothy seeds; and a few are beginning to sow fields exclusively of red clover. The crops of grass on the meadows of our best cultivated farms, frequently equal from two to three tons to the acre. The *average* product, however, even in the valley of the Tioughnioga will not probably exceed one and one half tons; and on the remote hills not to exceed one ton.

Weeds, fortunately, in our grazing county, are not spreading with the fearful rapidity with which they are overruning the wheat growing regions. Canada thistles, johnswort, and oxeye-daisy are the principal ones. The latter does not prevail to any considerable extent, and the two former are combatted with energy by our better class of farmers. But so long as one neglected farm may continue to stock a whole town with Canada thistles, I see no way to eradicate them until the man is made punishable *by law* who allows them to go to seed on his farm, and that law is *rigidly enforced.*

The manures used by our farmers are principally those of the stable, gypsum, and some leached ashes. There are many who suffer their stable manures to lose much of their fertilizing properties before they are applied to the land; but the practice is gaining ground

among our more intelligent farmers, of applying them in an unfermented state to the land and plowing them under. Those who adhere to the "old meadow" system, usually suffer their manures to decompose, and apply it as a top dressing to such old meadows. The wastefulness of such a course need not be urged. The same manure plowed under in its unfermented state, would have nourished a hoed crop—then the succeeding small grain crop—and then benefited a grass crop, nearly as much as if first applied to it as a top dressing, with its gases escaped, and its juices leached out by long exposure.

On the whole, notwithstanding their many palpable defects, I am of opinion that the existing methods of cultivation in the better portions of Cortland are such that the fertility of its soils is gradually and steadily improving.

Markets.—The grains raised in the county are principally consumed within it. Some oats and barley are carried to villages on the Erie canal. The principal exports of the county are wool, butter, cheese, neat stock, pork and flax. These are sold to purchasers from eastern markets. Pork, potatoes, stoneware, &c., are annually sent in considerable quantities into Pennsylvania by the Tioughnioga in "arks," or flat boats.

Agricultural Implements.—The plows mostly in use are Weird's No. 5, Eiden's, "Livingston County," Livingston County Improved, (or Delano's Premium Plow,) with some of Ruggles, Nourse & Mason's Eagle Plows, also Avery's, Clute's, and Wood's.

The Livingston County Plow was rapidly obtaining precedence as a green-sward plow, until the appearance of Delano's "Improved Livingston County," or Premium Plow, which received the first premium of the State Agricultural Society. This is now rapidly and most manifestly becoming the favorite. The principal defect of the Livingston County Plow, (too great narrowness at the heel,) has been corrected in it without sensibly increasing the draft; and it also combines other minor improvements. I consider it a very perfect implement, and on green-sward decidedly superior to any I have used, when the quality of the work performed by it, and the *lightness of its draft*, are connectedly taken into consideration. I never have used the celebrated plows of Messrs. Ruggles, Nourse & Mason, but justice compels me to say, that in one or two instances, where these plows have been tried in our county, the ultimate preference has been awarded to Delano's. I give the results of these experiments for all they are worth, not claiming by any means that they shall be regarded as decisive. The interests of manufacturers, as well as the progressive improvement of the most important process in husbandry, should not be jeoparded by rash declarations, or the publication of the doubtful results of imperfectly conducted experiments.

The harrow principally in use among our best farmers, is the double or hinged 32 toothed harrow. Square and old fashioned triangular harrows, are sometimes found. The Winged Harrow, (Wilber's patent,) has been introduced, and is highly spoken of by those who have used it.

The roller is coming into use; and the double roller, with an iron

axle, is by far the best, and will *annually* nearly repay its first cost. When the rollers are "turned" and properly mounted, its cost is not far from $20.

The *revolving horse rake* is in general use on our more level lands, and is justly regarded as a labor saving machine of the first importance.

The *threshing machine*, (if this is to be included among farm implements,) is less in favor than formerly. Where grain is principally raised for home consumption, as with us—where the crop of each farmer is not large, and where there is no necessity for haste in getting it ready for market,—there is certainly far less advantage in the employment of these machines. In the judgment of most of our farmers, they do not diminish the expense of threshing, and they lead to a great waste of straw. The straw of oats and barley especially, is eaten readily by cattle if fed when *newly threshed*. If these crops are cut and cured, as they always should be, when the the straw is somewhat green, and the straw is daily fed out, "fresh and bright," cattle will thrive on it about as well as on hay. The writer's cattle have been fed hay but once a day during the present winter. Straw, and to breeding stock a small daily allowance of roots, has constituted their remaining food. This is cheaper than feeding hay exclusively, and the cattle do equally well. Other farmers in the county have fed straw exclusively, with a small allowance of roots, with the same results. This could not, in my opinion, be done successfully if the straw was al. threshed out at once, though stacked with the greatest care.

The *chaff-cutter* is a most valuable implement. Gilson's is the favorite one in this county. On this point I shall have more to remark under a subsequent head.

Although the *hay-fork* does not rank in the first class of agricultural implements, I cannot here omit to say, that probably the best article of this kind manufactured in the United States, is made in Cortland county, and "by hand," by an aged mechanic named Lewis Sanford. They were exhibited, and received a flattering discretionary premium at the first State Fair, and were acknowledged unequaled for material, temper and finish, by all who saw them.

What agricultural changes are requisite.—The principal changes necessary to advance the agricultural prosperity of the county are, 1st. The further continuation and more general diffusion of those improvements, which, under another head, have been stated as already having been commenced in some of our most important agricultural processes, viz: in a division of agricultural labor,—in the rotation of crops,—in the method of seeding,—in the abandonment of summer fallowing,—in the increase and judicious application of manures,—in the abandonment of the old meadow and pasture system on arable lands,—in the improvement, by selection and crossing, of our breeds of domestic animals, &c. These several points are so much and so ably discussed in our agricultural periodicals, that it will be unnecessary to take them up at length on this occasion. There is, however, one point to which I wish to call atten-

tion. Our farms are usually lightly stocked, in proportion to their number of acres of cultivated land. "Keep little and keep it well," may be a good maxim, but "keep much and keep it well," is a better one. The more heavily land is stocked, the more manure is made, and consequently the greater its subsequent capacity to sustain heavy stocking. The common practice of wintering stock exclusively on hay, and converting straw directly into manure, requires a large portion of each farm to be kept constantly in meadow, and a great outlay of labor to cut and secure the hay. If straw can be made to answer the purposes of hay, the land devoted to meadow is saved for grazing and tillage, and the extra labor of cutting and securing hay is also saved. The straw of the coarse grains, cut *greenish*, can be made to answer the purposes of hay, with a small addition of roots or grain. The amount of grain is scarcely perceptibly diminished by its being cut a few days earlier than usual.

The amount of such straw which an animal will consume, (which will not exceed the amount of hay which the same animal would consume,) with the addition of two quarts of oat, barley, or "cob" meal, or a half a bushel of roots per day, will keep the animal as well as hay. Nothing is lost from the straw, for it is converted into manure, which has gained in strength as much as it has lost in bulk; and the cutting and curing of the hay is entirly saved, for the straw would have to be cut and secured at all events. It may be safely assumed that on the average, it will require twelve acres of meadow to winter twelve head of grown cattle. Six acres of meadow and six acres of coarse grains or roots, will winter the same number and leave a considerable surplus of grain or roots, over and above all the extra expense of cultivation. If 50 acres of meadow would winter 50 head of cattle, probably 25 acres of meadow and ten acres of oats, corn, barley, or roots, would winter them equally well, leaving 15 acres, which in the same ratio, would winter a fraction over 21 head: and thus 50 acres would be made to winter 61, instead of 50 head of cattle.

By the construction of the main feeding barns on the side of a slope or hill, the grain and hay might be deposited in the upper portion, while the lower part might be reserved for stables. A single horse power placed on the upper floor, with the necessary machinery, would thrash the grain, cut the straw, and, if thought advisable, the hay, and cut up roots; and these might be conveniently conducted without any hand carriage, to the stables below. Chaff cutters, root slicers, &c., should be so constructed as to be propelled by *horse power;* at all events, in large establishments. If they are not, the outlay for labor goes far to swallow up the profits arising from the use of these machines. With a little ingenuity, these might each have their places on an upper floor, and by changing the band of the horse power, might each be put in motion, and deposit the roots, chaff, &c., through trap doors into receptacles below, contiguous to the feeding stalls. By a "swing beam," as it is called, an ample floor can always be had without the sacrifice of much room in the barn.

By such methods, more stock can be reared on the farm, more ma-

nure made, and consequently profits increased, while the fertility of the land is increased.

There are other improvements requisite to advance the agricultural prosperity of our county, but perhaps there are none of sufficient importance to demand notice in this already extended article, which are not obvious to all.

Cortland Village, Feb. 13th, 1843.

AGRICULTURE OF GENESEE COUNTY.

BY THEODORE C. PETERS, DARIEN.

SINCE the census of 1840, the county has been divided, and it is possible that in collecting facts I may be erroneous in some figures, but in the aggregate, they will be found sufficiently correct for all practical purposes.

The county of Genesee is divided into thirteen towns and contains about 306,000 acres of land, of which about two-fifths, or 122,000 acres are under cultivation. Nearly all is cleared that will be, except by the gradual use of the standing timber for fuel or other domestic purposes. Excepting that part of the Indian Reservation which has not yet been brought into market, there is very little woodland that is not enclosed, and used more or less for pasturage. The policy of so doing is a doubtful one at least, when it is an object to keep up a constant supply of fuel and timber, as pasturing prevents the growth of underbrush to replace the larger trees when cut down. There are 33,000 inhabitants, of whom more than nine-tenths are engaged in agriculture. The county has been settled within the last 35 years.

1st. *Present condition of agriculture.*—The present condition of agriculture is comparatively good. Still there is room for much improvment, as the land upon an average does not yield more than one-half of what it is capable of doing, as has been practically demonstrated by farmers in the county. As capital accumulates among the farmers, more attention will be paid to farming. It will be but a few years before the land will be in as high a state of cultivation as any other inland county in the State. As a body, the farmers are a very intelligent, industrious, and prudent class, and I venture to say second to none in the Union. Every year gives increased evidence that they begin to take an interest in agricultural improvement. In 1840, before the county was divided, and contained upwards of 60,000 inhabitants, a call was made to form an agricultural society. Seven individuals only answered to the call. They, however, formed their society and put forth a list of premiums, although they had no funds except what were to come from their own pockets. The exhibition was fairly attended, and money enough raised to pay all premiums and leave a balance in the treasury. The society held its

third anniversary meeting this fall. There were more people in attendance, more spirit and interest manifested than at any previous meeting, although there is but about half the number of inhabitants. The great changes which have taken place, are the clearing up of the country; the log house and barn of the early settler has almost entirely been displaced by good substantial dwellings, and convenient barns and out buildings; and improving the land and facilitating intercourse by means of roads, few of which are as good or permanent as they should be.

2d. *Aspect of the county.*—The aspect of the county is gently undulating, with a gradual slope to the north. It is drained by two principal streams. The Tonawanda on the west, and runs north and northwest to the Niagara river, draining the western portion of the county; and Allen's creek on the east, which empties its waters into the Genesee river. The county is generally well watered by springs and streams. The water is pure and wholesome, though uniformly *hard* in springs and wells. There is but a very small portion which is not susceptible of the highest state of cultivation. The northern portion of the county abounds in limestone, and some very good beds of gypsum have been discovered, and are extensively worked.

The Tonawanda and the Attica and Buffalo Rail-Roads, run through the county.

3d. *Soil.*—The predominating character of the soil is calcareous, of a gravelly, slaty and clayey loam—very fertile, and in general easily cultivated; is well adapted to all kinds of grain and the roots. The northern portion of the county has not been considered as good grazing as the southern. The difficulty has arisen as much from a defective mode of cultivation, as from a naturally warm and dry soil. When clover is made to alternate with wheat, little difficulty need be apprehended on the score of summer feed. A greater attention to root husbandry will enable the farmers to carry through large stocks of cattle or sheep with their straw fodder, and thus materially increase their profits. All good wheat land will produce good roots, especially turneps. The more roots, the more stock; an increased quantity of manure, and hence greater productiveness in land.

4th. *Productions.*—Winter wheat is the staple product of the county. It is eminently a grain county. Every kind of grain the farmer finds it an object to raise, yields a remunerating crop.

The soil is natural for grass, and the white clover springs up spontaneously where the land is laid down for meadow or pasture. There is no difficulty in making the meadows yield from two to three tons of good hay to the acre.

The average of wheat is about twenty-five bushels per acre. Oats, thirty-five; barley, thirty; corn, forty. There is also raised a large quantity of potatoes and peas.

The principal products of 1839, as appears by the United States census of 1840, were

629,646 bushels of wheat.
7,007 do barley.

344,452 bushels of oats.
7,420 do buckwheat.
157,530 do corn.
305,978 do potatoes.
168,200 pounds of wool.
321,233 do maple sugar.
26,906 tons of hay.
Dairy products valued at $101,816.

Silk is made to some extent, and the cultivation increasing.

5th. *Markets.*—The wheat is marketed at points upon the Tonawanda railroad, or the Erie or Genesee Valley canals, and among the millers in the county. Barley is generally drawn to Buffalo and sold. There is no particular market for oats, and I believe they are consumed within the county; the same with corn, buckwheat and potatoes. Cattle are driven east and south, though a considerable number are slaughtered in Buffalo. That city also consumes a large portion of our surplus sheep and lambs. A large portion of the pork made in the county has also been sold there.

6th. *Cultivation.*—The system of cultivation has changed some within a few years. If there is any regular system it is to be found more or less in a rotation of crops, though not to the extent and regularity that is desirable or would be profitable for the farmer. There is very little old meadow or pasture, as experience has fully convinced the farmers that nothing is gained by leaving a field down to grass for any number of years.

Wheat is raised after summer fallow, peas, and in some instances barley and corn. Corn generally comes off too late to ensure a certain crop of wheat after it. For a few years past wheat has done the best which has been sown early in September. It is not uncommon to take two or three crops of wheat from the same field with only a fallow intervening. Then seed down with clover, and mow or pasture for two or three years, turn under the clover, and again sow on wheat. The most approved method by judicious farmers is to turn over the grown sward in the fall or spring, for peas or a hoed crop, as corn or potatoes. Wheat succeeds the peas in the fall, and barley or peas succeed the corn, when wheat follows. A fallow intervenes, wheat again follows, and the land is seeded, and left to meadow or pasture for two or three years, when it is again put under the plow. Gypsum is used upon the wheat and clover. This course has been found to increase the fertility of the land, without any outlay for manure. The manure made in the winter is usually applied to hoed crops in the spring. Manure begins to be considered an important article, but no attention is yet paid to manufacturing it by artificial means; the compost heap is seldom seen.

Draining has been carried on in some towns to a considerable extent, and has been found very advantageous. There are but few farms that cannot be benefited by underdraining, or by open ditches.

Subsoiling would be generally useful, and a strong, but at the same time a light subsoil plow, that could be worked by the ordinary team of the farm, would be an invaluable acquisition to the farmer.

In seeding down land clover is used alone where it is intended for pasture, at the rate of 12 to 16 lbs. per acre; when intended for meadow, it is used with timothy seed at the rate of 1 lb. of the latter to 2 lbs. of the former, and from 10 to 16 lbs. sown to the acre. Red-top is sown upon moist land. Orchard grass is coming into use some.

Fruit is abundant, and most of the orchards grafted to valuable kinds. Very little cider is made, the greater portion of the apples being consumed by the stock, principally swine.

Of the implements in use there are a variety of kinds. The cast iron plow is universal, but there are several kinds, and each has its friends. I consider them all defective in one particular. They cut too wide a furrow for the depth.

The average depth of plowing is about four inches, and the width of furrow slice not far from fourteen inches. I am satisfied that a plow, cutting but an eight inch furrow, would be much the most profitable, because it would enable the farmer to cut a much deeper furrow with the same team; and deep plowing is of the very first importance for successful tillage. True, it would take more time for the first plowing, but the labor of after cultivation would be much abridged by the soil being so much easier pulverized. The cultivator, double oblong and triangle harrows are in general use. The double oblong harrow is preferred. The roller is used considerably, and its use constantly increasing. The revolving horse rake is universal. Drills and sowing machines are coming into use some. Grain is threshed by threshing machines of various patents, which are usually carried about from farm to farm; very few being stationary. Straw cutters are not much used.

7th. *Animals.*—There are some imported and thorough bred improved Short Horned Durham and Devonshires. The two breeds have each their friends, and grade animals of one or the other breed are found in nearly every town in the county. The merits of the Short Horns are not yet properly appreciated. There is a lingering prejudice as to color, which makes against them. But they are gradually becoming more popular. The grade Devonshires make beautiful oxen. The cattle are good through the county.

The horses are good, but there is no prevailing breed. If there be any fault, it is in their being too light for all the purposes of the farm.

The swine as a breed are excellent. There is a variety of breeds. The Berkshire, Essex, and the Leicestershire, are found in every degree of admixture, from the pure bloods to the remotest cross. The Berkshires are at this time rather the favorite. These are probably, under all circumstances, the most profitable hog the farmer can raise.

In sheep, we have as great a variety as in swine. There are Merinos and Saxons, South Downs, and the long wooled sheep under a variety of names, as Bakewell, Leicester and Cotswold. The small

farmer who raises sheep for the butcher, and with whom wool is only a secondary object, will find the most profit in the coarse wooled sheep. But for the large farmer, fine wooled sheep are decidedly the most profitable. The merino is considered the most hardy, and therefore the most desirable for a fine wooled flock.

Sheep are generally sheltered and allowed a plenty of litter. It is the practice of many large farmers, to winter them at stacks. If furnished with good shelters, they have been found to do as well, and generally better, than when confined to yards. In that way, the flocks are easily divided, and but about one hundred are allowed together. The lambs are usually kept at the barn, where they can have more attention, and if necessary, better keep. The ewes generally drop their lambs early in May. On a wheat farm, sheep are considered the most profitable stock that the farmer can raise. A greater attention to root culture would add materially to the farmer's profits in keeping sheep. In general, the sheep are very healthy; I do not know that the foot rot has ever occurred in the county.

There are but very few mules raised in the county. The census of 1840 shows of animals, as follows:

Horses and mules,.....	8,718
Neat cattle,.....	22,203
Sheep, ...	88,810
Swine, ...	28,150

8th. *Value of land and size of Farms.*—Farms are sold from $12 to $80 and $100 per acre. The general average at this time of the selling price for farms, would fall below $40. At the present value of farms, they probably pay a better interest on the investment than almost any other county in the State.

The average size of farms would be not far from 150 acres. Very few have over 300 acres, or under 50 acres.

9th. *Timber.*—The prevailing timber is sugar maple. In the northern towns, it is mixed with oak, chestnut, beech, and some hemlock, elm and bass wood. The southern portion has less oak than the north. Black and white ash, whitewood and sycamore are found in various parts. Various kinds of the walnut are also found in the county. The woodland is well timbered; and most farms possess sufficient good rail timber to keep their fences good for a century, if properly husbanded, and a more improved method of fencing is adopted.

10th. *Fattening stock for market.*—Excepting swine, very little stock is fattened for market. Hogs are fattened generally in the autumn, and early part of winter; the greatest number are marketed from the middle of November to the middle of December. They are generally about 18 months old when killed; and average not far from 300 lbs. dressed. The method of fattening very prevalent now, is to boil or steam potatoes or apples, and mix with them provender made by grinding corn, buckwheat and barley or oats together. In this manner, they are fattened off very rapidly, and at small expense. Peas are generally fed to them in the vine. If ground, they are frequently used in the place of corn, and make a very good substitute.

Stall feeding is practiced to but a small extent; within the last two years, it has been found a precarious business, owing to the competition by western farmers. Still, stall feeding might be made profitable by adopting a different mode. Instead of feeding meal as has hitherto been the practice, feed at least two-thirds of the time with roots. That is, give two feeds a day with roots, and one with meal.

11th. *Changes necessary to improve the agriculture of the County.* —The changes necessary to improve our agriculture, are a greater attention to the improvements which science has enabled the intelligent farmer to make in the methods of cultivation. The attention of the farmer must be excited, correct information must be disseminated, and a standard of thought, if I may use the expression, erected.

The first step requisite, is to place in every school district library, at the expense of the State, a well bound volume of the annual Transactions of the State Society. A channel for thought will thus be opened, and a taste for agricultural literature created and encouraged. An increased circulation of agricultural periodicals would follow as a matter of course; and then the Agricultural Society would be sustained in such a manner as to make itself permanent, and its usefulness greatly increased.

My own experience in the management of the County Agricultural Society, has convinced me that nothing can be done that will be of more benefit at this time than to place the Transactions of the State Society within the reach of every farmer in the State.

It would then be an easy task to form a Farmer's Club in every town, where stated meetings should be held for the discussion of the various subjects connected with agriculture. The formation of these clubs in England is doing the cause immense service, by bringing out a mass of facts that could be collected in no other manner so well; and facts well authenticated, are the very things that the farmers want.

A model farm properly conducted, in this part of the State, would exert a very salutary influence upon the agriculture not only of this but of all the counties in this region. There are few if any who have the capital requisite to establish such a farm; or having it, have the time or skill necessary for its successful prosecution.

AGRICULTURE OF ONEIDA COUNTY.

BY BENJ. P. JOHNSON, ROME.

Oneida county has a population of about 90,000, and is divided into twenty-five towns and the city of Utica. The surface of the county generally is diversified enough to give variety, and to ensure streams of pure living water, and an atmosphere remarkably salubrious. Some of the northern towns are considerably hilly, but the central and western parts of the county are sufficiently level, diversified with occasional undulations.

We have many varieties of soil, some admirably adapted to grain, others to grazing, but all very productive. We have in this county much more extensive public works than any county in the State. The Erie canal passes through the county from east to west, and on its borders have arisen flourishing villages. The forest has been felled, and the rich products of the agriculturist are now rewarding the labors of the farmer, where, when I first located in this county, almost impenetrable forests existed. The Chenango canal extends from Utica south to Madison; and the Black River canal commencing at Rome, passes through the northern section of the county to the Black River in Lewis county. The Syracuse and Utica and Schenectady rail-roads also traverse this county, affording to our inhabitants every facility which can be desired, and numerous valuable streams afford mill sites, which are occupied by splendid manufacturing establishments exceeding any county in the State. The condition of agriculture, though not what it should be, is evidently improving; and in many respects the farmers of Oneida deserve great praise for their economy, the neatness of their farms, their judicious use of manures, a correct system of cropping and bountiful products. In this county the former efforts, under the auspices of the Agricultural Society of 1820, resulted in much good, although in many respects their proceedings did not entirely secure the confidence of the farming interest. But no unprejudiced mind will doubt, I think, that the good effects of that association still remain among us, and is evident in the improvment of our animals, in more judicious cultivation of farms, and in an increased desire to become possessed of information in relation to improved systems of husbandry. The soil of the central and southern portion of the county is well adapted to all kinds of grain and roots, corn, barley, rye, oats, potatoes; wheat, both spring and winter, are raised in great abundance. The wheat crop is not as sure with us as in some of the western counties. The ravages of the fly often disappoint the hopes of the farmer, and the severity of the winters at times being equally disastrous. For the last four or five years, however, wheat has been raised in many of our towns of fair quality, and the yield very good; and I am of opinion, after considerable reflection and examination, that if proper care is used in the selection of seed from the west, and a suitable preparation of the land for the crop, we may raise winter wheat without difficulty, and realize a very liberal reward. The Italian wheat, which has become so celebrated as a spring wheat, was first brought into notice by a merchant of this place, who procured the seed from a gentleman lately from Florence, Italy, who without ever having seen the place, purchased a farm in the town of Florence in this county, doubtless supposing that he was about to witness the sunny clime of his own dear native city; sad indeed was his disappointment, when he found himself in the midst of a Siberian winter, with piles of snow deeper than ever his imagination had supposed to exist. Having had at the time the agency of the farm on which he lived, I remember the keenness of his disappointment,

the prostration of all his bright hopes, as well as the expenditure of his property to the utmost farthing.

The Italian wheat, however, was more congenial to our soil and climate, than was the climate to the Signor who introduced it. For several years it superceded almost entirely the winter crop, and large quantities of it were raised. For the last few years, however, it has not succeeded as well as formerly and is much less cultivated. In most of the northern towns of this county, the chief business of the farmers at this time is the dairy. Their lands being somewhat elevated, are rather too cold for successful cultivation of grain crops, but very superior for grazing; their attention has been turned that way, and the result has been a very rapid increase of wealth. Many of these farms are as productive as any in the county so far as pecuniary results are concerned; and farms which but ten years since could have been purchased at a very moderate price, have been sold within the last three or four years at prices nearly, if not quite, as high as the best grain farms in the county.

But a spell has come over all our farmers just at present, which we hope will soon pass away, so that we may again buy and sell, if need be, as in former times. The dairy business is pursued very extensively, and is constantly increasing. A regular system is adopted for the purchase and sale of the products of the dairy, by agents from New-York and elsewhere; and where the dairyman is careful to feel the mint drops in his hands before he unloads his butter and cheese, to him it is profitable.

The credit system has proved very disastrous to many a farmer, and has swept from him the entire earnings of his establishment at a single blow. In a neighboring county, while on a pleasure excursion, having emerged from the woods after a long and wearisome march with my fishing rod and basket, I came upon a farm house, and found the farmer a former resident of Oneida, whom I knew. He was engaged in the dairy business, and gave me the results of the two preceding years. The first, he sold his cheese to one of the agents who were buying up dairies at a very high price, to be paid for after the cheese should be sold in market; but the concern failed, and he never received a single dollar for his year's stock. The next year he was offered a fair price for his cheese by a gentleman from this county, who was ready to pay him the cash; but he thought he could do better—sent his cheese to market to sell on commission, and realized *three* cents on a pound, after paying commission and charges. I advised him to sell his cheese for cash for the future, (at the fair market price when ready for market,) and then all would be well. He has since pursued that course, I believe, and the result has been entirely to his advantage. In my opinion, the farmers should adopt this practice generally; sell for cash to the merchants at fair prices; buy for cash their goods, and then avoid the hazards of failures and loss, and secure to themselves their goods at prices which yield to the merchants a fair return, instead of paying an advance, as they ever must when bought on credit, to compensate for bad debts and delay of payment.

Large quantities of beef and pork are made in this county. The dairies furnish large supplies of pork early in the season, and the corn regions supply immense quantities. There is always a market for beef and pork in most of our villages and at Utica, though a very large amount annually is shipped directly to New-York and Boston. Frequently purchasers from Boston and other eastern cities come on and purchase, and pack for themselves.

In the southern towns in the county, sheep husbandry is attended to; and we have many fine flocks of sheep, both fine and coarse wooled. The extensive manufactories in the county afford a market for most of the wool grown in the county.

In former times, when Albany ale was in greater demand than since the triumphs of Washingtonians, hops and barley were cultivated to a very great extent, and large sums of money were realized from hops. The demand, however, is now much less than formerly, and the amount annually raised has very much decreased. The soil of this county is admirably adapted to Indian corn and potatoes, and perhaps few counties in the State produce better crops. Most of these crops are consumed amongst us. Some of our farmers who have been in the habit of marketing their crops at the distillery, have been very much alarmed at their decrease, fearful that they would have no market; but some of them have found out that it is quite as well for them to fatten their own cattle and hogs, and secure the profit to themselves, as it is to sell their cattle and grain to the distiller, and find their profits among the untold dividends of a bankrupt distiller's effects. But the cornstalk sugar and the lard oil, begin to excite the attention of farmers; and the time, I imagine, is not very far distant, when the hills of Oneida will be waving with fields of corn for the manufacture of sugar, and when we shall be no longer under the necessity of purchasing an article raised by the untold agonies of servile hands.

Oats are raised in this county very extensively, and the canal furnishes a ready market, though large quantities are shipped annually to the New-York market.

Root crops are receiving much attention latterly, and their importance is becoming more and more apparent. For neat cattle and sheep they are admirably adapted, and the increased quantity of manure from their use, renders the raising of them very advantageous to the farmer.

The culture of silk is receiving considerable attention, and there is no doubt that it will prove a profitable business—one that with a small outlay will produce a very fair return, and employ females and children, who otherwise might not contribute much to the income of the farmer. From what I have seen of the establishments in this county, I am satisfied they will succeed; patience and care are all that is wanting. We can produce the silk we need—we must do it—and why should it not be done? Why should we pay tributes of millions to foreigners every year for an article of luxury merely, but which our habits have made almost necessary? The time will come, and I

trust ere long, when our own demand will not only be supplied, but a surplus for others be produced.

We have in this county some good breeds of cattle. Choice Durhams are to be found to some extent. A cross of the Holderness has produced some very excellent stock. We have Devons also which are very fine. The best working cattle are of that breed; and I am inclined to the opinion that a cross from the Durham with the Devons would give a breed better than either for our purposes. This county has a very excellent native stock, and a cross with choice full bred animals, will give us a stock of neat cattle equal to any in the country. The attention of farmers is awakened to this subject, and it needs not a prophet to foretell that soon Oneida will exhibit as fine a stock as any of her sister counties.

Horses, I regret to say, are not such as they should be. For several years past less attention has been paid to a choice selection of the best breeds than formerly. The horse we want we have not amongst us. Very few first rate animals are to be found. I trust that this will not long be permitted to exist. We want "horses of good size, form and strength, clean limb, and good color and action." Horses of this description suited for coach horses, will not only be profitable for the farmer, but will always command a ready market.

Our swine are good. The improved Berkshire is to be found in almost every part of the county. The China and Leicester also are among us, and the crosses with good native breeds are furnishing us with very fine animals. Indeed I have noticed the present season in our market very many hogs from a Berkshire cross, evidencing all the properties of that breed. Purchasers are beginning to learn that a hog whose meat is placed in the right spot, is worth more than one whose superior weight is made up of nose and legs large enough almost for an elephant, and hide thick almost as a rhinoceros. The improvement in swine is most manifest, and is peculiarly gratifying.

Of sheep we have the Saxony, Merino, and some of the Leicester, and many of the common sheep. Some flocks of fine woolled which I have seen, are equal to any which have come under my eye. It is hoped some measures will be adopted to raise the price of wool, so as to encourage its growing, as at its present prices it is almost ruinous.

Of agricultural implements we have a great variety. The most improved plows are manufactured here, and the variety is such as to suit almost every taste. The Livingston county plow is probably more generally used than any other pattern. It works well, and for most of our land is preferred to any other. Improved cultivators, drill-barrows, hay-rakes, straw-cutters, threshing-machines, &c. are generally in use; and as their convenience and usefulness becomes known, they are supplying the place of less useful articles.

We have in this county extensive tracts of wild land. This land, however, is fast settling. Our improved land varies in price from $20 to $100 per acre, though at the latter price but few farms comparatively are held.

The establishment of an Agricultural Society in this county the last year, has been productive of the most beneficial results. It has awakened new interest among our farmers. Improvements are evident in almost every town in the county. A better system of manuring begins to prevail; and without this, all our efforts to improve will be in vain; without a judicious application of manure, the best efforts will prove unsuccessful; many a farm which now only produces half a crop, might at a very small expense be renewed, and gladden the owner with a crop, such as, it may be, he has hitherto in vain expected from it.

I know that many farmers who are content to jog on in the old way, who take no agricultural journal, who will not adopt any suggestion out of the ordinary course, are in the habit of opening wide their eyes at the announcement of a very large yield of any crop: why, they don't believe these statements, *for they never could raise as much!*

Still the facts are multiplying around them, and they must see and be convinced. The crops are harvested; the result is exhibited in the granary or in the crib. The yield is there, and however wonderful it may appear, they will soon be overwhelmed with evidence, and they will begin at last to inquire how is this accomplished. They will find that a judicious application of manure, a suitable rotation in crops, adaptation to the soil has produced the result.

It is gratifying to observe that there is a very great improvement in farm buildings in this county. The neat painted farm house is supplying the place of the moss-covered, unsightly, weather beaten, unpainted house; good and convenient barns and out-houses for cattle are being erected; and although much more ought to be done in this respect, it is peculiarly gratifying to witness what an advance has already taken place. Draining is being practiced among our farmers with the most happy results. This has in a measure, I presume, been advanced by the example of English farmers, who have purchased farms amongst us. Wherever an Englishman plants himself, if there is a wet cold spot on his farm, the ditch is at once opened, the land reclaimed, and good useful grasses supply the place of the unprofitable marsh. Our Yankee farmers have adopted the same practice, and they too are realizing the blessed results of improvements.

I might, were it desirable, give you the statistics of our county; but as they are connected with the census, it cannot be necessary.

What shall be done to advance the interests of agriculture in this county? To this, I answer, a judicious rotation of crops—a careful attention to the preparation and application of manures—choice selection of seeds, adapted to our climate and soil, and the introduction of a thorough system of practical agricultural education, either in connexion with our existing schools and seminaries, or by the adoption of such a system in a school connected with a model farm. I deem this of vital importance to a permanent and healthy advance in agriculture. We need also, well selected *full bred animals* to cross with our native stock; and no good reason now exists to prevent this be-

ing done. Our own country can furnish from the many choice herds which are scattered over it, animals equal, probably, to any we can ever expect to procure from importations; certainly there are many that would prove of immense advantage to us.

We need more system in all our operations connected with our farms; we are realizing the effects of system and order in the management of many of our farms; and when it shall become universal, and when prejudice shall have been overcome, agricultural science more generally diffused, the empire county will at least sustain in her agricultural relations that commanding elevation which is now awarded to it for her wealth and resources.

With a firm reliance upon Him, without whose blessing all our efforts will be in vain, I cherish the fond expectation that ere long we shall be permitted to witness an improved system of agricultural education, as well as such an improvement in agriculture generally as will gladden the heart of every patriot and every lover of the best interests of his country.

AGRICULTURE OF ONEIDA COUNTY.

BY CALVIN WASHBURN, STOKES.

THE present condition of agriculture in this county is promising, having undergone considerable change for the better, within the last few years. This change may be mainly attributed to the circulation of agricultural periodicals, and the improved method of cultivation brought about by them, and the influence of certain individuals in different sections of the county who have given us occular demonstration of the benefit of a judicious rotation of crops and economy in collecting and applying manures. Oneida county has considerable level land lying east and west through the county from Utica east, to Oneida Lake west, and is admirably calculated for the production of grain as well as for grazing. The north and south is more uneven, especially the towns of Boonville, Lee, Western, Steuben, and part of some other towns in the north; and they are occupied mostly for dairying, except Lee and Western.

There is as great a variety of soils in this as in any county in the State. There is the rich, fertile, alluvial soil along the streams; the dry gravelly; the wet cold upland or hill country, with a rich mucky surface, but a subsoil near the same; some very stony and some sandy pitch pine plains. The products are as various as the soil. Those mostly produced for market, are beef, pork, butter, cheese and wool. The other products, such as oats, corn, rye, barley, hay, potatoes and other roots, are consumed mostly in our own county. Our marketing is done at the villages along the Erie canal. The modes of cultivation are somewhat various, but new and improved ones are getting more and more in fashion; and I think the old skinning system will soon

give place to a more improved one. The breeds of horses are very numerous, but I am unable to give the name of the different varieties. There has not been any great improvement in horses for some years past.

The native breed of cattle mostly prevail; but there is some improvement by crosses of the Durham with the native going on, and it bids fair to be of great service to the grazing community. The fine wooled sheep is fast giving place to the coarser varieties in this part of the county, such as the native, Bakewell and South Down, &c.

The old large boned, long eared, long snouted hog, is being exchanged for the improved Berkshire, Leicester, &c. The beef is almost all fattened on grass, and mostly slaughtered and packed here; but some are sold to drovers and driven to market.

A variety of plows are in use here, but those mostly esteemed for turning sod, are the Livingston county and Scotch plow. We have several other cast iron kinds esteemed for common use, manufactured here.

The square harrow, some with joint and some without, are mostly in use. There are a great variety of threshing machines, straw cutters, hay rakes, &c. in use here, and each have their admirers and friends.

I cannot give you any correct idea of the value of our lands, as there are locations which would command any price, and others that would be prized very low.

The timber is of every variety almost which grows in this State; but the dry land is mostly covered with beech and maple.

The only change needed to advance the prosperity of the county, is an improved mode of farming by a regular course of rotation of crops and a strict economy in collecting, and a judicious application of manures, together with habits of temperance, industry and frugality. These combined with honesty and integrity and a spirit of inquiry and emulation, will cause the desert to bud and blossom as the rose, and the solitary place to be glad. And nothing is better calculated to bring about such a state of things, than the diffusion of agricultural information among farmers; and this can only be accomplished through the influence of agricultural periodicals.

AGRICULTURE OF ONONDAGA COUNTY.

BY WILLIS GAYLORD, OTISCO.

SINCE the current of western emigration began to overleap the German settlements on the Mohawk, in 1783, and spread over the fertile districts of Western New-York, the county of Onondaga has held a distinguished place in its history; and has exerted a powerful influence in all matters connected with the prosperity of the state. To this its natural fertility, its central situation, its hardy, industri-

ous and intelligent population, mostly derived from New-England, and its great mineral stores of salt and gypsum, have doubtless essentially contributed. The third county in population in the state, its social, political, and agricultural influence is widely felt; but it is to a brief sketch of her resources in regard to agriculture, that this paper must be confined.

Onondaga county contains, according to its assessment rolls, 454,700 acres of land; of which 270,330 acres, according to the state census of 1835, was improved, and the quantity cultivated does not at the present time differ materially from that amount. The gain of improved land since the census, has been in the northern towns of the county. As there is but little land in the county incapable of improvement, the quantity of cultivated land may be estimated at the present time at 300,000 acres; leaving about 150,000 acres as woodland, or such as is not fit for culture. A small part of this is covered by the lakes of the county, and another part, principally in the northern towns, by swamps which are as yet undrained.

The agricultural character of Onondaga county cannot be clearly understood without some knowledge of its geological position, and the several causes that have been brought to bear upon and modify the qualities of the soil in its various parts. In the New-York system of rocks, extending from the primitive to the coal, as divided and classified in the elaborate and final reports of the Geological Surveyors of the state, Onondaga occupies a position extending from the Clinton group (the lower member of the Protean group of the early reports,) upwards, embracing the Niagara group, the Onondaga Salt group, the Water lime group, the Oriskany sandstone, the Onondaga limestone, the Corniferous and Seneca limestones, the Marcellus shales, the Hamilton group, the Tully limestones, the Genesee slate, and on the highest hills in the southern towns of the county, some of the Portage group.

The *Clinton group* barely appears at Fort Brewerton, and along the outlet of the Oneida. Its influence on the soils is limited. The *Niagara group* shows itself in the towns of Cicero, Clay, and Lysander, and the limestones and shales composing it, have a decided influence on the soils overlying them. The mass of limestone which here has a thickness of only from five to ten feet, at Niagara has increased to eighty, and at Galena and Dubuque on the Mississippi, to more than four hundred feet. The *Onondaga Salt group* contains, 1st, the red shale. This mass occupies in connection with No. 2 of the same group, from which it does not widely differ, all the south part of Cicero and Clay, the whole of Salina and Van Buren, the south part of Lysander, and the north part of Camillus and Elbridge. Above this is No. 3 of the salt group, containing the plaster beds, and the hopper shaped cavities, proving the former existence of rock salt. This is narrow, and crosses Manlius, Onondaga, Camillus and Elbridge. No. 4 of this group, is a limestone of limited thickness, abounding in cavities formed by sulphate of magnesia. The salt group, in its several divisions, covers a larger part of the county than any other of its rock masses, and exercises a more than proportionate

influence from the minerals it contains. The *Water lime group* has a thickness of only from thirty to eighty feet, and passes across the county from east to west, immediately above the salt group. It is of more consequence to the arts than to agriculture, affecting the soils but in a very limited degree. The *Oriskany sandstone* has a still less thickness than the hydraulic limestone, but from the nature of its constituents it occupies a conspicuous place among the modifying agents of the soils near its outcrop. It passes across the county, in the towns of Manlius, Onondaga, Camillus and Elbridge. The *Onondaga limestone* is the stone so extensively used for quarrying, yet rarely exceeds more than fourteen feet in thickness. It extends across the county, in connection with the sandstone, and though limited in area, exerts a favorable influence wherever it appears. It passes across the county near the boundaries of Pompey and Manlius, and north of the central parts of Onondaga, Marcellus and Skaneateles. The *Corniferous* and its upper member, the *Seneca limestones*, appears above the Onondaga limestone, and pursues the same course across the county. Its influence is limited, but good. The thick mass called the *Marcellus shales*, lies above these limestones, and occupies the northern half of Pompey and La Fayette, the south half of Onondaga, nearly the whole of Marcellus, and the north half of Skaneateles. The *Hamilton group* is above this, and covers the south parts of Pompey and La Fayette, nearly the whole of Otisco, part of Marcellus, the south part of Skaneateles, and the north part of Spafford. The *Tully limestone* follows, but its extent as well as its influence is limited. It is found in Fabius, Tully, Otisco, and Spafford. The rocks which have been mentioned, are the ones which most affect the soil and agriculture of the county, only a few of the highest hills in Fabius, Tully and Spafford, being capped with the rocks of the Portage group; the space between this and the Tully limestone being occupied by the *Genesee shale*, which covers a large part of Fabius, Tully and Spafford. A glance at the map will show the direction of strata named, and the parts of the county occupied by them.

The thickness of these several masses may be estimated as follows:

Clinton group,	100 feet.
Niagara "	150 "
Onondaga salt,	800 "
Water lime,	70 "
Oriskany Sandstone,	20 "
Onondaga limestone,	14 "
Corniferous "	80 "
Marcellus shales,	400 "
Hamilton Group,	300 "
Tully limestone,	20 "
Genesee slate,	200 "
Portage group,	150 "
	2,304 "

The height of the most elevated parts of the southern towns over those of the north, or those on the Seneca river, may be estimated at 1,200 feet. This shows a difference of 1,100 feet between the geological and the actual elevation, which is accounted for by the dip of the strata to the south, which is from thirty to forty feet per mile.

Elevation is found to be an important element in estimating the agricultural capabilities of all countries, particularly in northern or southern ones, as it has a decided effect on temperature, and consequently on vegetation. Humboldt, Davy, Arrago, &c. have estimated 500 feet of elevation, equal to a degree of latitude, in its influence on plants; and the thermometrical range proves that this does not err widely from the truth. This fact must be taken into account in the estimate of agriculture in any district, and cannot be overlooked in that of Onondaga. A considerable portion of the south part of the county lies from five hundred to seven hundred feet above the level of Onondaga lake, and as a natural consequence, must feel the influence of a reduced temperature when compared with the northern part.

The deep valleys which, opening to the north, at the level of the canal, extend southward to the south line of the county, cutting down through all the strata above the salt group, are not one of the least singular features of the county, and exercise a great influence on its agriculture. The valleys of the Limestone and Butternut creeks, the deep central one of Onondaga, and those occupied by the lakes of Otisco and Skaneateles and their outlets, are of this class. The hills between them rise from three hundred to eight hundred feet high, and their slopes from base to summit generally admit of cultivation. It is at such points that the influence of temperature on the soil and the crops is most plainly apparent.

Any estimate of the agricultural capabilities of Onondaga, that did not take into account the drift, or Quaternary deposit of Prof. Vanuxem, must manifestly be very imperfect. This mass constitutes the diluvium of the earlier geologists, and forms in nearly all cases the cultivated soil; as the instances are rare in which the soil can be directly traced to the disintegration of the rocks beneath. This drift invariably is from the north, showing that the currents by which it was deposited flowed from that direction; and hence its character is easily determined. The northern towns of the county, constituting the level portion, or all that part north of the canal, although based on shales nearly impervious to water, have such a thick covering of drift, that except in the lowest portions, the surface is usually free from water, and the porous substratum allows the escape of the water more readily than where the soils are less level, but more compact. These soils abound in sand; and the pebbles abounding in them are mostly from the Medina and red sandstones to the north of the Clinton group, mixed with those of the Clinton and Niagara formations. Considerable difficulty will be found in draining those parts of this district that are now swampy and wet, from the very level face of the country, and the small fall of the streams that traverse it. The detritus of the salt group are thrown back upon the limestone masses, and the vast quantity of these that have been broken up and

pulverized, are filled with other materials on the shales of the Marcellus and Hamilton groups that overlie the limestones on the south. South of the limestone groups, there is so much similarity in the successive strata, that their removal or mixture exercises but little effect in changing the character of the soils constituted. There is no rock in the series, which, in proportion to its thickness, exercises a more important and beneficial influence than the Oriskany sandstone. Thrown back on the shales to the south, the silex which forms its base, and the lime by which its particles are mostly cemented, are alike useful to soils naturally disposed to too much moisture and denseness. It is evident that the soils formed from the decomposition of the shales that cover the southern half of the county, must, from the quantity of clay they contain, be inclined to more compactness than those of the northern part of the county, and their character is in a great measure modified and determined by the quality and quantity of drift thrown upon them. Of the soils of the county, those lying on the limestones will be the driest, while those on the shales will be the most heavy and wet. The thickness of the drift deposit, also has a great influence on the dryness or the wetness of soils; and as this seems in a great measure to have been determined by local circumstances, farms in the immediate vicinity, or adjoining each other, have very different qualities in these respects. The experiments of Dr. Madden prove that a soil containing only a proper supply of moisture, or that which is necessary to vegetation, when compared with one in which it exists in excess, is on an average 5° warmer; a most important difference, where 5 degrees of temperature during the three summer months decide the success or the failure of the corn crop. The sketch here given of the geological condition and position of the several parts of the county, though necessarily brief, will serve to indicate its agricultural character, and the course of cropping most suitable to be pursued.

The staple crop of Onondaga county is wheat, and though all sections of it are not equally favorable to its production, there is no part where more or less of this grain is not grown. The annual crop may be stated at half a million of bushels, some years exceeding this amount, and some unfavorable ones falling short. It is probable the quantity produced has not varied materially for the last 8 or 10 years; nor have we any positive data for determining whether the yield per acre has increased or diminished in that time. On many farms where a more skilful and systematic mode of farming is adopted, the wheat product is increasing; on others, where the skinning system is still practiced, the yield must be decreasing. On some farms, where wheat, at the first clearing away of the timber, grew well, it cannot now be grown with much certainty, a failure that may be attributed to unskilful culture, exhausting the vegetable and animal matter originally in the soil, and while thus depriving the plant of its food, at the same time reducing the friability of the soil, on which the success of the wheat crop is in a great measure depending. Wheat is found to be a much more certain crop in the northern and central parts of the county than further south. As a general re-

mark it may be said that although some of the best wheat farms in the county are to be found on the Marcellus shales and the Hamilton group, much the largest portion of wheat grown in Onondaga is produced north of the line which separates the Marcellus shales from the Limestone groups; and though the detritus of these groups thrown upon the shales, has given an excellent wheat soil for some three or four miles in width across the county, to the south of this line the effects of the shale subsoil in the retention of moisture and the reduction of temperature, will make itself felt where this transported mass is not of such thickness as to prevent. On the most elevated lands of the southern towns, frost has such a destructive effect on winter sown wheat, that, unless in some favored location, spring wheat is usually sown in preference to the former. In this county, wheat is usually sown on a clover fallow; and on the best farms wheat, clover, and sheep husbandry, are considered almost inseparable. The fields intended for wheat, are fed with sheep until June; it being considered better to feed off the clover crop upon the ground than to turn the whole under; when it is carefully turned over, and the clover and roots having had time to ferment, it is again plowed one or more times, as is necessary, and then sown with wheat. From the first to the fifteenth of September, is found to be, on the whole, the best time for sowing. Earlier, the drouth and the fly frequently prove injurious; later, this plant does not get sufficiently rooted to withstand the frosts of our severe winters. Clover seed, at the rate of from four to six pounds per acre, is sown on the wheat in the spring. Some farmers use timothy seed with their clover, but on suitable soils clover alone has the preference. A material change of opinion has taken place within a few years in favor of plentiful seeding with clover and grass, and the effects on the rapid improvment of the soil are most manifest. Plaster is sown on the wheat in April or May, not so much for the benefit of the wheat as the young clover; and many farmers plaster their clover the second year also. On soils in good condition, however, this second plastering is dispensed with, as giving too luxuriant a growth to the clover, making the stem too large and coarse. The first and second years, the clover is pastured, and the third year it is again in wheat. If it is necessary to mow any part of the land intended for wheat, a dressing of manure or compost is given; otherwise, where the clover is fed off on the land, manure is deemed unnecessary as applied to the wheat crop. Summer fallowing, as formerly practiced, is not deemed advisable except for the purpose of cleaning lands. Where lands are very foul, a crop can hardly be secured without it. Peas are by many used as a preparatory crop for wheat, and with good success; particularly where manure is needed. The ground is well manured in the spring or the fall preceding, and a short time previous to sowing, is skilfully turned over, rolled and harrowed. The peas sown get the first benefit of the manure; that and the turf covered by the pea crop are thoroughly decomposed, the peas are taken off in season, and the ground requires but a single plowing to fit it for the wheat. The greatest danger the wheat

grower in Onondaga has to encounter, is freezing out in the spring of the plants; and the only certain remedy for this is found to be a perfect freedom in the soil at all times from unnecessary moisture. There are many farms, particularly on the Limestone deposits, that have this dryness naturally; on nearly all it may be given by thorough draining and subsoil plowing. Much more attention is given to seed wheat and its preparation, than formerly, and on well managed farms smutty wheat is now never seen.

Barley was formerly, and indeed until within a year or two, one of the principal crops of Onondaga. Perhaps more barley has been grown in the town of Pompey within the last fifteen years, than in any other town in the state; and the county, in the amount of this product, far exceeded any other. The temperance reformation has not been without its influence on the cultivation of barley, many farmers being unwilling to raise for sale an article mostly used in distilleries and breweries. Large quantities are still grown for consumption on the farm, it being a very certain crop, productive, and excellent for the purposes of feeding. As a spring grain, barley is one of the most valuable cultivated. It requires a soil in strength and other qualities suitable for wheat, but will give a good yield and a fine berry, where owing to a too great retention of moisture, wheat sometimes fails. One of the best barley soils in the state, is found on the Marcellus and Hamilton groups; and on those parts of this soil where wheat was at all doubtful, the farmer found, and still finds, an abundant resource in this grain. As in the case of wheat, barley is the better for having the manure applied to a previous crop, it being liable on very rich soils, or when manure is applied directly, to lodge while growing. Another cause has had some effect in checking the culture of barley. It was found where the crop had been most perseveringly grown, that the soil was rapidly becoming foul, and required seeding to grass or summer fallowing, to remedy this evil. From fifty to sixty bushels per acre of barley have been raised in this county, and forty bushels per acre are quite common. So far as immediate profit is concerned, barley is perhaps as valuable as wheat; but its effect in fouling soils where no intervening cleaning crops are grown, has prejudiced many against its culture. This objection is easily obviated by a skilful course of cropping, and barley will no doubt continue to hold a prominent place in the products of Onondaga.

Indian corn is cultivated to a great extent in this county. The level sandy lands of the north part of the county, the warm limestone soils of the center, and the deep rich valleys which penetrate the county north and south, are found admirably adapted to this crop. In 1838 the writer visited nearly every county in the western district of New-York, for the purpose of investigating the condition of their agriculture, and nowhere did he find heavier and more abundant crops of corn than in this county. The limestone soils, and particularly those where the influence of the Oriskany sandstone was most felt, retained a manifest ascendancy in this grain. The sections most favorable to this crop have been named, but there is no part of the county where the soil is put in a proper condition by manuring and drain-

ing, where corn may not be produced. On the more elevated parts of the southern towns, however, the earlier sorts of corn are to be preferred; and even then, in such places, barley perhaps may be preferred.

The quantity of oats cultivated in this county is immense; it being the custom with many farmers, where spring grains are more grown than winter wheat, to continue to sow oats after the indispensable part of their spring work is done, as long as there is a probability of their ripening in autumn. Oats are a crop rarely lost in consequence of unfavorable weather, and are equaled by few for the purposes of feeding to animals. In one respect oats seem better adapted to animals than any other grain; they evidently combine in a superior degree, the necessary proportions of bulk and nutriment so essential to the animal. There is no other grain so much used for horses and sheep, and there is none on which they keep or thrive better. Some farmers who grind corn or peas for making pork, prefer using one-third oats to either of the former, thinking their pigs do better on this mixture, than on pure corn or pea meal. Great quantities of grass seeds are sown with spring grains, but they sometimes fail in consequence of being too long delayed. Grass seeds must be sown as early as they will vegetate in the spring, as the great danger to them arises from the occurrence of severe drouth before the young grasses are sufficiently rooted. Grass seeds will succeed with either spring wheat, barley or oats, and farmers choose among them at pleasure, although two things may be deemed indispensable to success, a rich soil and early seeding.

Potatoes are the favorite root crop in Onondaga, and very large quantities are cultivated. Turneps, beets and carrots are grown to some extent, but far short of what it is believed the interests of the farmer demand. Experiments have seemed to show, that the ruta baga could not be relied upon with as much certainty as the beet or carrot, in field culture, owing, it is supposed, to the great heat of our summer months; though where it has succeeded, the crop has been large and valuable. Is it not possible that farmers in this country have made a mistake in adopting the English time of sowing for this root? In that moderate, moist climate, where drouth rarely occurs, the turnep, if sown late, never suffers for moisture. Here, unless the vigorous tap root has forced its way to some depth, the occurrence of one of our hot dry seasons must be fatal to the plant. Would not a few weeks earlier sowing, by giving the plant the chance of becoming bettter rooted, increase the probabilities of success to the crop? As it is necessary in all cases, to sow the beet and carrot early, they rarely fail, when on soils of suitable depth and quality, of giving good crops. We think the carrot one of the crops that best reward the farmer; but to grow it to advantage requires a rich, light soil, not too dry, but free from all stangnant subsoil water. There is no animal to which the carrot does not seem grateful; and of the necessity of some kind of green food for stock of all kinds, during our long winters, no good farmer can doubt. Cut straw and carrots, or even potatoes, will keep horses and cattle in very good condition, where work

is not required; then, grain of some kind is always requisite. Large quantities of potatoes are now fed to stock, their greater ease of culture inducing many farmers to prefer them to other roots.

Pursuing a mixed husbandry, as a large proportion of the farmers of Onondaga county do, the rearing of animals necessarily becomes an object of much interest to them. Pompey has long been noted for a breed of fine red cattle, evidently derived from the Devons, and the same or a similar breed has been extensively distributed. Lately, some fine animals of the Durham stock have been introduced, particularly in the vicinity of Skaneateles, which have already had a great effect in improving the cattle of that section of the county. At the present time, Durhams of good blood may be found in every town of the county, and the attention of farmers to the improvement of their stock has been much excited. Whatever differences of opinion, as to the best breeds for effecting the desired improvements, may exist, the necessity and possibility of such improvement is admitted by all. Of swine, the fine formed and easily fattened Berkshires have had a deserved preference, although prejudices exist against their color, and some have objected against their size where pigs were to be fed for market. There may be some foundation for this complaint, so long as a large hog, two-thirds bone, and which has got its living by hook or by crook, will command a better price in market than one well fed and well larded, simply because it weighs a few more pounds. This objection as to size is easily obviated by a cross with some of the larger kinds, and some fine specimens may be found from a cross of the Hampshire and the Berkshire. A large amount of pork is usually made and sold by the farmers of this county for barreling, and which goes to the Canada or the New-York markets, as the interests of the packers may dictate; but the quantity sold the past year has been much less than for many previous years, prices not justifying the feeding of pigs by farmers to any extent. Wool growing has been a favorite pursuit with a large number of the farmers of Onondaga; and the number of sheep owned in the county is large. The Merino and the Saxony sheep were early introduced, and it is believed that not a flock of the unmixed original stock can now be found in the county. Very few flocks, or indeed animals, of either of these fine wooled breeds can be found pure, but mixtures of every possible degree exist. There have been some fine animals of the South Down and Leicester varieties introduced, but they do not seem to have excited the attention they have done in some other parts of the State.

Mutton is not to any considerable extent used as an article of food by farmers; hence those kinds, the wool of which best reward attention, continue to receive the preference. The opinion, doubtless well founded, is general, that for wool we must continue to look to the breeds originally derived from Spain; and that of these, while for fine wool the Saxony must have the preference to all others, the Merino, being more hardy, bearing heavier fleeces, and of a texture which enables it to endure our cold and wet seasons, is to be chosen by the common farmer. A large amount of capital is invested in the

production and manufacture of wool in Onondaga county, a result perhaps to be expected, when it is remembered that by the wheat grower the sheep is preferred to all other animals, as most profitable on a wheat farm. Less attention has perhaps been paid to the rearing of horses in the county, than that of any other of the domestic animals, still it has not been wholly overlooked, and many fine farm horses have been produced. As all the farm work, or nearly all, is done by horses, animals fit for the plow, or for draft, are in most request, and have received more attention than any others. It may well be doubted whether this practice of working horses to the entire exclusion of cattle is not a bad one for the farmer, still where the production of grain is the principal object, it is evident the horse must be principally relied upon. But on farms where a mixed husbandry prevails, where two teams are required, it is believed one yoke of cattle might be advantageously substituted for the horses that now usually fill their place. In order to show at a glance the relative number of domestic animals in the county for the last few years, we select the returns from the state census of 1835, and the United States census for 1840. Imperfect as they doubtless are in some respects, they will serve as guides to examinations and reports which may hereafter be made.

	Neat Cattle.	Horses.	Sheep.	Hogs.
1835,.....	49,533	17,620	121,835	50,284
1840,.....	127,020	15,082	209,650	61,733

The population in 1835 was 60,908; in 1840 it was 67,914.

It is a subject of regret that we have no means of instituting a similar comparison between the agricultural products of different years; but the census of 1840 was the first estimate of the products of the country. As a matter of curiosity, and to furnish materials for comparison hereafter, we copy from the returns of the census made to the legislature, the following amounts of the principal products of this county for that year.

Wheat, ...	467,699 bushels.
Barley,.....	384,615 do
Oats,.....	538,751 do
Buckwheat, ...	14,420 do
Corn, ...	401,293 do
Wool,.....	316,139 pounds.
Hops, ...	7,907 do
Potatoes, ...	800,315 bushels.
Hay,.....	64,145 tons.
Sugar, ...	178,520 pounds.
Dairy products,.....	$164,289 value.
Orchard do	35,333 do

The attention to the improved methods of agriculture is evidently on the increase in this county. The quantity of land thoroughly drained, has quadrupled within the last two years; and such has been its beneficial effects, that draining will continue to extend rapidly.

Covered drains, two and a half to three feet in depth, are preferred, it being found that they are much less liable to be filled than open ones, while their draining advantages are superior. The necessity of such draining is shown by the fact that in many places where little water was shown on the surface, so much existed in the soil as to furnish, at the discharge of the drains, water in sufficient quantities to make fine watering places for stock during the whole of the year. It is clear that soils containing water in such excess must be much benefited by draining, and rendered much more warm and friable. There is no agricultural process which promises more to a majority of the soils in this county, than draining.

Manures, although receiving more care from farmers than formerly, do not receive the attention they deserve. Without the return to the soil in *some form*, of the materials taken from it by the crops grown upon it, it is impossible fertility should continue. This truth cannot be too firmly impressed on the mind of the farmer, or too constantly acted upon. Although much light has been thrown upon the nature and action of manures by Liebig, Dana, &c., still some very crude notions are prevalent among farmers. The writer not long since heard a farmer, who grows annually from thirty to fifty acres of wheat, maintain that the *only* good effect produced by manures was the warming of the soil. With him, however, this error in theory did not produce the pernicious effect it might upon others, as few farmers are more active in applying manures, and as may be easily predicted, with manifest advantage to his crops. The true doctrine of using fresh manures on those crops only that are benefited by its active fermentation, is yearly gaining ground; that which is fully decayed or formed into compost, being found the best for grain crops. Of the mineral manures, rich as this county is in most of them, plaster only has received any attention from farmers. The quantity of this used is very large, and it is principally applied to clovers or meadows. It is also sown on peas, and occasionally applied to potatoes with good effect. Lime, though found in abundance in all parts of the county, has received no attention as a manure. The neglect of this substance may be found in the fact that lime exists naturally in all the soils of the county to such an extent that, with scarce an exception, they readily effervesce in acids. In nearly every part of the county limestone gravel or pebbles are to be found, and the gradual decomposition of these renders further application unnecessary. Salt is another of the mineral manures which in some places has been found most efficient, but which, abundant as it is in Onondaga, has never received the slightest notice from the farmer as a fertilizer or stimulant of the soil. It is certainly worthy of a fair trial, and it is to be hoped will not be long overlooked. Should it prove as valuable here as it has in other reported instances, the farmer will have at his hand one of the most efficient of manures; and gypsum and salt, as they are always associated by nature, will become equally so in increasing our agricultural products.

A marked advance has within a few years been made in the agricultural implements used in this county. This is a subject of great im-

portance to the farmer. If, in the common plow, one kind is drawn one-third easier than another, performing the work equally well, a regard for the team should induce the general adoption of the best; and so with any other improved implement. The establishment of an agricultural warehouse at Syracuse, has been of essential service to the farmers of the county, and should be well supported by them. The great mass of farmers are ignorant of the improvements that are making in farm implements, and require to have their attention called to this advance, or the implements placed before them, to understand such improvement. The sidehill plow, the subsoil plow, and a variety of other implements of the greatest value are rapidly extending their numbers and use; while the skill of the mechanic, directed to this point, is constantly producing implements to lessen the labor or increase the products of the husbandman.

There can be no room for doubt that the establishment of agricultural societies, and the general circulation of agricultural periodicals, have had a great effect in stimulating the farmers of Onondaga county, and directing them in their career of agricultural improvement. The societies consequent on the act of 1817, produced a happy effect, and the good influence they exerted had not wholly passed away, when the existing associations under the present law were organized. In one respect, the new organization is far superior to the old; by bringing to the aid of the society the impulse which self-interest or individual contributions are sure to give. The funds of the earlier societies were wholly furnished by the State; now the counties must assist in the support; a course which experience demonstrates to be the true one. It may be stated to the credit of the farmers of Onondaga, that it is believed a larger number of periodicals devoted to agriculture are taken in this county, than in any other one in the State. The results are manifest in the spirit of inquiry and improvement which meet the observer in every part.

Onondaga is decidedly agricultural; its soil, its minerals, its location, conspire to make it so. It requires nothing but an intelligent population, industrious as well as enterprising, to give it a still more elevated agricultural character. Its soil, its climate, require examination; and few places can better reward the inquirer into the natural condition of our country. In conclusion, it may be stated that the general level of the northern part of the county is about three hundred and fifty feet above the level of the sea, and that the highest parts of the southern towns, Pompey, Fabius, Tulley and Spafford, are some twelve hundred feet above this, giving a total elevation of some fifteen hundred feet. The influence of temperature between the elevated and the low lands, is best seen in the fact that harvest is from twelve to fourteen days earlier on the canal level than in the extreme south of the county. There are consequently few counties that combine more facilities for producing grain or stock, or for carrying out those rotations in agriculture so essential to the improvement and the increasing fertility of the soil. We have carefully avoided all reference to individuals, in the foregoing remarks, although there are many whose exertions in the cause of agriculture,

in the cultivation of their farms, and in the improvement of the domestic animals of the county, deserve honorable mention. The influence of such men is widely felt, and they have their reward in the pleasure which agricultural improvements are sure to produce in the minds of the patriotic and the intelligent.

AGRICULTURE OF QUEENS COUNTY.

BY ALBERT G. CARLL, JERICHO.

QUEENS county was first settled about the year 1640, and its inhabitants are chiefly engaged in agricultural pursuits.

Great improvements have been made within a few years by the introduction of new and valuable seeds, and by the experience and experiments of those who are willing to improve, and whose results are now so generally diffused by agricultural publications. Most were in the habit of drawing from the earth all they could, without giving any thing in return, until the soil became exhausted, and the crop was hardly worth the labor bestowed. But all now understand that as they put on, so will they take off; and great attention is paid to manuring and renovating the soil, and it is looked upon by intelligent farmers as one of the most important questions that affects them.

The "well enough" spirit has existed among our farmers, and prevented improvements being made here as fast as in many other parts, but it is fast giving way to a more liberal and enlightened spirit.

The present condition of our agriculture may be considered favorable, and while it reflects credit upon our farmers, gives an earnest that the errors which are only sanctioned by time, will soon be corrected by the intelligent spirit of inquiry and experiment.

The aspect of the county is generally even; while upon the north, bordering upon Long Island Sound, there are gentle hills and dales, giving agreeable variety to the scenery, and making beautiful and pleasant locations, there is but very little that is so rough as to be difficult of cultivation.

There is a ridge of hills passing east and west through the county, and south of that the country is perfectly level, entirely clear of even small stones, and some 20,000 acres of it without a tree upon it. The opinion is that it was once covered by the sea.

Upon the north and south sides of the county are numerous streams, flowing into the bays and harbors; and except that part south of the line of hills, and a little north of the extreme south side, it is well supplied with natural springs. Upon this plain water is only obtained by wells, at a depth of 60 feet or more, being about level with the tide water.

The highest land in the county is the "Harbor Hill," at Hempstead harbor, 319 feet above tide water.

The soil is generally fertile, and on the north and middle is loamy, and on the south more sandy.

The principal products are wheat, Indian corn, oats, potatoes and hay; and there is a considerable surplus of beef, pork, poultry, &c. to send to market.

The products are marketed at Brooklyn and New-York city.

The common mode of cultivation is to plow the sward in spring for corn, manuring well; the next spring sow oats without manure, and in the fall prepared to be lain down, well manured, sown with wheat or rye, and grass seed. The grass is then cut for a few years; then pastured a year or two, and again goes through the same cultivation. Of course it depends much upon the character of the man, and the size of his farm.

The horses are generally good ones, of the English race breed; and as the very stout, heavy kind are not as necessary as in a more rough and hilly country, they are found to be the most handy and profitable on the farm, (at least where but a few are kept,) and as roadsters, are ready to carry the products to the market. A ready sale is always found for such horses in the New-York market.

But few cattle are raised in this county, as the demand in the New-York market is such as to make a good calf a month or six weeks old, worth as much as it would be at two years of age.

Our cattle are generally from Suffolk county, and the interior of the State. The large part of our cattle are natives, while the favorite breeds are Durhams, and Durhams crossed with natives.

Considerable attention has of late been paid to the rearing of sheep, and many of our farmers have fine flocks of the most improved breeds. The Merinos and Saxonys were long the favorites, and perhaps are yet the most numerous; but as sheep are raised by our farmers for the mutton rather than the wool, it is found that the heavy breeds are the most profitable.

Of swine there are all varieties—from the stately Berkshire, who by general consent is placed at the head of that honored and honorable family, and the delicate Chinese whose unrivaled flavor has brought them in high favor with the palates of epicures—to those who require, when full grown, a yoke to prevent them from passing between the pickets of the garden fence. The favorite breed appears to be a cross of the Berkshire and the best native breeds.

Large numbers of swine are fatted for the New-York market, and the plan most generally adopted is to let them run in pasture through the summer, and feed them the slops of the kitchen and dairy, and about the first of September to put them in pens and feed with apples, potatoes, pumpkins, unsound corn, &c. Some who have the conveniences, boil the apples, &c. which is most generally approved. They are slaughtered in November and December.

The cattle and sheep are generally fattened upon grass, although during the winter many are fed in stalls. But little attention has as yet been paid to the cultivation of roots as food for stock. Those who have used them deem them more profitable than grain.

There are many plows in use, among which may be named Free-

born's, Freeborn & Hitchcock's, and Wood's, the latter two forming perhaps the majority. Shroud's, made at Skaneateles, is used by a few, and much liked; and recently the "Wiskonsan plow" has been introduced, and by some approved of.

The square harrow, a few cultivators, and a few rollers are in use. The revolving horse rake is used but a little as yet. Threshing machines have been used by a few for many years, and within the last three years many have been introduced. The owner threshes the grain at so much a thousand sheaves, removing about from farm to farm as required. They are considered handy, as they enable advantage to be taken of any rise in the market.

Straw cutters are but little used.

Scythes are mostly the English, forty-eight inches in length.

The farms generally do not consist of more than one hundred cultivated acres, and the average value is not far from $80 per acre.

There are large quantities of timber of the three oaks, chestnut, and hickory. In the east part of the county bordering on Suffolk, there is considerable pine, but it does not grow large. The locust grows generally on the north side and in the middle of the county, and large amounts are annually shipped to New-York. Our farmers have within a few years paid much attention to its cultivation, and now have large tracts well covered with thrifty young locusts.

AGRICULTURE OF RICHMOND COUNTY.*

BY SAMUEL AKERLY, M. D., OAKLAND FARM, SOUTHFIELD.

BOUNDARIES.

RICHMOND county, though small, is of much importance from its position, its beauty and its productions. It is an island in the extreme southwesterly part of the State, adjacent to New-Jersey, from which it is separated on the north by Newark bay, and a narrow estuary called Kill Van Kull, and on the west by Staten-Island sound, which is crooked and narrow, but navigable by steamboats and river craft. The south side is washed by the waters of Raritan bay and the Atlantic Ocean, while the Hudson-river laves its eastern shore, and then mingles wth the waters of the great deep.

EXTENT.

Staten-Island is the name most generally in use and applied when speaking of Richmond county. Being in the extreme south part of the State, it is in the vicinity of the city of New-York, a few miles southwest of it, and consequently nearly in the same parallel, lying between forty and forty-one degrees of north latitude. The

* Accompanying this report were received an accurate original map of Richmond county, and some geological specimens, which will be disposed of according to the directions of Dr. Akerly, and for which he will please accept the thanks of the Society.—*Cor. Sec'y.*

island is about fifteen miles long, in a direction from northeast to southwest, and about ten miles from north to south in its widest part, but that width is not uniform.

TOWNSHIPS AND POPULATION.

The county is divided into four townships, viz: Northfield, Southfield, Westfield and Castleton, which names indicate the relative portions of the Island they occupy.

The population, by the United States census of 1840, was ten thousand nine hundred and eighty-five. By the State census of 1835, the population of the county was seven thousand six hundred and ninety-one, showing an increase of three thousand two hundred and ninety-four, or forty-two per cent in five years.

In summing up the aggregate of the population from the tabular statements, contained in the Legislative Document published at Albany, (No. 117 in Assembly,) 8th Feb. 1841, we find the inhabitants of Staten-Island arranged as follows:

Males,		5,235
Females,		5,237
Free negroes,		459
		10,931
To these must be added for omissions or typographical errors,		54
Total inhabitants in 1840,		10,985

BUSINESS EMPLOYMENTS.

The active business part of the inhabitants were that year engaged as follows:

Employed in agriculture,		841
"	commerce,	340
"	trades and manufactures,	786
"	navigating the ocean,	212
"	navigating bays and rivers,	441
"	the learned professions and as engineers,	90
"	quarrying stone,	35

In a population of nearly eleven thousand, there were found only thirty-seven persons over twenty years of age who could not read and write, and these were mostly immigrant foreigners.

By the foregoing statements, it will be seen that about one-sixth of the male population, or one-thirteenth of the whole, are employed in agriculture.

AGRICULTURAL PRODUCE.

Staten-Island, though not altogether an agricultural county, and though one of the smallest in the State, is productive of many of the

necessaries and comforts of life. In 1839 there were grown in this county,

36,347	bushels of	Indian corn.
18,989	"	wheat.
47,712	"	potatoes.
23,793	"	oats.
8,865	"	rye.
5,819	"	barley.
4,238	"	buckwheat.

These numbers are taken from the census of 1840, but they refer to the preceding year, as the crops were not ascertained for that year when the person taking the census was engaged in the labor.

The same year the county contained

912	horses and mules.
2,517	neat cattle.
136	sheep.
3,180	swine.

The following articles were also produced:

3,610	tons hay.
3	" hemp and flax.
172	pounds wool.
101	" hops.
53	" wax.
5	" silk cocoons.
485	cords of wood.

Poultry and some other articles are enumerated by their value:

Value of poultry,	$8,001 00
Product of the dairy,	25,506 00
" of orchards,	6,148 00
" market gardens,	17,029 00
Home made or family goods,	1,279 00

The State of New-York is essentially a grain growing country, and every county in the commonwealth produces more or less of the cerealia.

COMPARATIVE STATEMENT.

In comparing the productions of Richmond county with those of other counties of the State of New-York, it will be found by the census, that in 1839,

8	counties	produced less	wheat,
22	"	"	rye,
3	"	"	buckwheat,
2	"	"	Indian corn,
18	"	"	barley,
3	"	"	oats,
2	"	"	potatoes,
2	"	"	hay, than Richmond.

Of bread corn, of barley, oats, potatoes and hay, a much larger quantity is produced than the consumption of the county requires, and the surplus is sold in the city of New-York.

VALUE OF CROPS.

From the preceding statements, hay appears to be the principal and most valuable crop, estimating it even at the present depreciated sales of fifty cents the hundred, or ten dollars the ton of 2000 lbs. The crop of 1839, at this price, would be worth $36,100, but in that and the succeeding year, hay sold higher and would probably average 62½ cents the hundred, or $43,320 for the entire crop.

Indian corn is the next in importance and value, and other edible articles in succession of value, would be wheat, potatoes, oats, rye, barley and buckwheat. In estimating these at the market prices of 1842, their value would be $64,134. To these must be added the products of poultry, the dairy, the orchard, the market garden and domestic or family goods.

The stock of poultry is estimated at $8,001, which in chickens and eggs, would probably produce $1,120, or fourteen per cent on the capital, owing to the facility of selling them in New-York. The value of the dairy is stated at $25,506, which would be equivalent to 141,700 lbs. of butter per annum, at 18 cents. The butter made on this Island, however, is mostly consumed in the county, is not of the first quality, and is not laid down in firkins, and that which is sold is usually sent in fresh rolls during spring and autumn to New-York, or the villages on the Island.

The produce of the orchards in 1839, was $6,148, which is not a large yield. There was more fruit in 1840 and less in 1841 and 1842; as in these two years, the trees were injured while in blossom, by cold and wet north-easterly storms. Fruit trees appear to be deteriorating, and apples, pears, peaches and plums are diminishing by diseases in the trees, and their consequent gradual decay. It may be observed however, that new orchards and plantations are forming to supply the waste.

The produce of market gardens was $17,029. The nearness to New-York, and the facility of getting there by steamboats with market produce, gives employment to a number of persons, who attend the public markets, and there sell their own fruit and vegetables, or act as agents for others.

Small quantities of hemp, flax, wool, hops, wax and silk cocoons, have also been produced, but to such a limited extent, that their whole value, together with 435 cords of wood cut and sold, would not probably exceed the value of $2,800.

The following, then, would be the value of the agricultural crop of Richmond county in 1839:

Crop of hay,	$43,320 00
Indian corn,	22,716 00
wheat,	18,000 00
Carried forward,	$84,036 00

Brought forward,	$84,036 00
Crop of potatoes,	11,928 00
oats,	8,922 00
rye,	5,540 00
barley,	2,909 00
buckwheat,	2,119 00
Value of chickens and eggs,	1,120 00
Produce of the dairy,	25,506 00
orchards,	6,148 00
market gardens,	17,029 00
Home made or family goods,	1,279 00
Hemp, wool, hops, cord wood, &c.,	2,800 00
Total value of crop of 1839,	$169,336 00

ANIMALS.

Nine hundred and twelve horses and mules were in the county in 1840. The mules are but few in number and kept for draft. The horses are also occasionally employed on farms to plow and harrow, but they are more generally used on the road. Among them are some common and poor horses, and some Canadians; but there are also many fine looking noble animals. There is no particular breed that can be designated as prevalent; the race is evidently a mixture of all varieties.

Most of the heavy farm work is performed by oxen, of which there are some fine specimens on the island, stout built, strong, hardy and docile. The soil is not so rocky as to require them to be shod.

The number of neat cattle in the county in 1840 amounted to 2,517. Among them are some superior cows of the native breed, without mixture or cross of the late imported and improved breeds. Durham cattle, however, have been introduced, and are becoming common, and a consequent improvement is taking place. The writer has a superior yoke of Devon oxen, raised in Connecticut. The hornless cattle, or Galloway breed, are very common on Staten Island, and there are some excellent cows among them. The writer has three which are remarkably gentle. Oxen of this breed are not employed, as the want of horns would render it difficult for them to back. They are here called the Buffalo breed.

There are very few sheep on the Island, and these have mostly been raised for family use. One cultivator has found it to his advantage for several years past to purchase a stock of sheep in the autumn, keep them well through the winter, and dispose of them in the New-York market early the next season before the Hudson river opens. Others are now pursuing the same practice. As the crop of hay in 1840 was very large, and the price is unusually low, some are also buying cattle to consume their hay, with the intention to sell them again in the spring.

Swine are more numerous than any other of the domestic quadrupeds. The census of 1840 gives us that year 3,180. The Berkshire

breed has been introduced and crossed with the common hog. Mr. Edward Bement, on the north side of the island, has some superior Berkshires from the stock of his brother at Three Hills Farm, near Albany. The writer has some fine animals from the stock of Mr. Brentnall, formerly of English Neighborhood, in New-Jersey. These have been crossed with other swine, and he has some good hogs of the half breed, three-quarters and full blood Berkshires. But he has found that the inhabitants generally do not appreciate the breed, or the speculation in them is over, as they will not pay more for Berkshires than common hogs. He has this autum (October, 1842,) sold half breed and full blood Berkshires, three and four months old, for one dollar fifty cents and two dollars a piece, and six weeks old for seventy-five cents.

OTHER ARTICLES.

There are two other articles raised on the island not noted in the census, and these are cabbages and willow.

CABBAGE.

Cabbage might have been enumerated in the produce of market gardens, but as it is an article of field culture, it is presumed not to be ranked among horticultural productions. One farmer near Prince's Bay, on the south side, annually raises cabbages to the value of five or six thousand dollars, and even found it profitable in 1840 and 1841, when they were sold in New-York at two dollars and fifty cents the hundred. They are cultivated in large quantities by others, and form a considerable item of export from the island for city consumption in New-York. To raise them in perfection they require to be strongly manured. Barn-yard manure, street dirt, and sometimes fish, are liberally supplied to the soil in which they are transplanted, from the bed where they are sown in the margin of the field After the cabbage crop is taken off, the land is in a good condition for wheat or rye; and we are informed by a cabbage grower, that land heavily manured, will not only give good crops, but will resist frost, and withstand the drouth better than land that is poor, or poorly manured.

WILLOW.

Swamp willow is both native and imported. It is cultivated in wet and swampy grounds, of which there are many acres on this island unreclaimed and useless, which might be profitably occupied in the culture of willow, where nothing else could be advantageously grown. Mr. John Reed has a plantation of willows in Southfield, and another in Westfield, where the native and foreign swamp willows flourish and grow most luxuriantly. Their growth in one season is from four to eight feet in length, straight and slim. They are cut down annually in March, tied into bundles, and then set in the water until the buds begin to open, which indicates that the sap is flowing. When in this condition the bark is easily stripped off, and the twigs again tied into bundles, and prepared for use or sale.

This material is extensively employed in the manufacture of willow

baskets; and although our swamps abound in native willows, yet the greater part of the raw material is imported from France and Holland. The writer has seen them growing in various places in this State, in New-Jersey and Michigan.

The baskets and other articles manufactured from willow are of the large kinds, which, owing to their lightness and bulk, cannot be imported to advantage, and are therefore exclusively made by our own artizans. But in the manufacture of the small and fine willow baskets, they cannot compete with the French, who supply the American market with the finer kinds of split willow ware. The French basket makers must either work for very low wages, or as is suspected, there must be some method pursued of evading the duties, to import and sell the fine basket work so low as to monopolize the market. Our workmen can make all the varieties of willow ware, but only the coarser and larger kinds with profit. Mr. Reed, who has plantations of willow as above mentioned, resides in Southfield, is a manufacturer of willow ware, but raises more than he works up, and sends his surplus to the New-York market.

NAVIGATION AND FISHERIES.

By a preceding abstract of the census, it will be seen that there are only eight hundred and forty-one persons employed in agriculture in Richmond county, being one-sixth of the male population; while there are nearly as many engaged in navigation. Of those who make their beds upon the water, a portion sail in the adjacent bays and rivers, some embark on the wide Atlantic, and a few follow the whale fishery in the Pacific Ocean. The insular situation of the county affords facilities and inducements for a number of the inhabitants to abandon the plow to go "plow in the deep." In 1840, there were six hundred and fifty-three persons employed in navigation, which causes a neglect in agriculture. The domestic fishery too, abstracts greatly from the attention which would otherwise be applied to the cultivation of the soil.

Shad.—On the south side of the island, preparation is made in March for the shad fishery, which continues in April and May. This fish, when properly cooked, is one of the most exquisite and savory of the finny tribe. It is a migratory fish, and visits the northern streams annually, to deposit its eggs in the fresh water beyond the reach of the tides and voracious fish of the ocean. It formerly ascended the Hudson river above Stillwater, and spawned in Saratoga lake, but the obstructions in its outlet at the mouth of Fish creek, have long since excluded them from that lake.

After the shad has spawned, it becomes poor and thin, and so much altered as hardly to be known for the same fish. The old fishes which have not been taken in ascending our rivers, return with their young, and pursue their way coastwise until they reach the gulf of Mexico. Every spring, shad frequent the Delaware, the Hudson, the Passaic and Connecticut rivers. They grow fatter as they gain more northern latitudes. At Charleston, S. C., in February they are not esteemed. When they reach Philadelphia, in March, they are in

good condition and fine eating. In April and May, they are still better in New-York, and those taken in Connecticut river are esteemed the best.

The shad is the *Clupea alosa* of scientific writers. (See Mitchell's New-York Fishes.) On Staten-Island the seine or draw-net is sometimes employed in taking shad, but the fike or stationary hoop net is principally used to capture them. Along the southern and eastern shore of the island, every person who has a farm fronting on the water where the shad run, has his fike or fikes prepared in due season, and set at a proper distance from the shore. The fike is lifted at every low tide and the fish taken out. If the proprietor take more than is required for his own consumption, the surplus is sent to the New-York market. Occasionally, in some situations, the fishery is more productive than the farm. But in the memory of the writer, the run of shad has very much diminished.

Mossbonkers.—The Manhaden or Mossbonker fishery follows in June, after shad disappear. These fish run in immense shoals, and are taken with a seine. They contribute greatly to increase the crops of the husbandman, by being applied as manure, for which alone they are taken. They are a species of herring, and an edible fish, but so full of bones as to be almost wholly rejected as food. The fishermen take and sell them to the farmers at seventy-five cents the thousand. They are applied to corn, potatoes, buckwheat, cabbages, &c., of which we shall speak under the head of manures.

Spring and fall fike fishing.—There are also other inhabitants of the ocean, frequenting the southern shores of the island, which divert attention from farming. In the cool weather of spring and autumn, small fikes are set extending but a short distance into the water, for taking the smaller kinds of fish which run with the tides close along shore, and furnish a domestic supply. Among them, however, are sometimes fish of a larger size, and such as are taken with the hook and line in deeper waters. In these fikes are taken

Black-fish, Labrus tautoga,
Striped-bass, Perca mitchelli,
Weak-fish, Labrus squeteague,
King-fish, Sciœna nebulosa,
Tomcod or frost fish, Gadus tomcodus,
Flounder, Pleuronectes planus,

} Scientific names from Mitchell's N. Y. Fishes.

Horse-foot.—In the months of June and July, the horse-foot is taken in considerable quantities by hand in shallow water, and at low tide. This is an animal of the crab kind, with a body in the shape of a horse's hoof, with a horny triangular tail. It is the Monoculus polyphemus of naturalists, and the king-crab of the East Indies. It creeps upon the bottom with a slow pace, and is easily taken into the hand by the tail. Crawls are established along shore, in which hundreds are sometimes taken at a tide. They have been sold for a dollar a hundred, but in 1842 for half that price. They are cut open and given to hogs, ducks and chickens. The females are full of a gelatinous substance, and of eggs the size of a large pin's head, upon which ducks and chickens feed with avidity and grow rapidly. Hogs

must not be killed for food while feeding upon horse-feet, as the flesh tastes rank and fishy, and it requires many weeks and a change of food to remove it.

Shell-fish.—Oysters and clams are also taken in abundance in the waters around the island, and likewise tend to withdraw the attention of the inhabitants from the cultivation of the land. Oysters are raked in deep water on the north, the west and the south sides of the island. Clams are dug with the hoe or clam rake at low tide on the sandy shores and muddy bottoms of the south side. Very large ones are taken in deeper water with oyster rakes or tongs, off the southern shores, as well as in Staten-Island sound.

The planting and raising of oysters has become an extensive and lucrative trade. With the increase of the city of New-York, the demand has been so great that the beds where they originally existed have been raked and scraped uutil they are nearly exhausted in the vicinity of that city. Hence a supply has been sought in the south, and oysters from Virginia are imported in great quantities, but they are not so good as those growing in the colder waters of the Atlantic coast of New-York. To obviate this objection, they are brought from the Bay of Norfolk in the spring, planted on the south side of Staten-Island, and again raked up in the autumn, improved in size and flavor. A number of large schooners are employed in the oyster trade between Staten-Island and Virginia; while smaller vessels ply between the oyster beds and the New-York market, to dispose of the fruits of the labor of a numerous class of men engaged in the business.

A portion of the oyster raking and planting is confined to the waters of the island. In the months of March and April, hundreds of flat-bottomed row-boats or skiffs, are seen the whole length of Staten-Island sound, raking oysters, many of which are mere spawn attached to stones and shells, and are not larger than the thumb nail. These are taken to the south side and planted as those from Virginia, in the neighborhood of Prince's bay, or in other parts of the waters of Raritan bay or Amboy sound, where they thrive and grow sufficiently to become saleable in one season.

METEOROLOGY.

The husbandman must be observant of the weather. Meteorology, therefore, becomes to him a study and an important part of his knowledge. Much of it is to be gained by one's own observation, some from other persons, some from instruments, as the thermometer and barometer, &c. some from the almanac and some from local causes.

In Loudon's Encyclopedia of Agriculture, general rules are deduced from a long series of observations, prognosticating the state of the weather by the changes in the moon. These, though true in general, are not invariably correct. For instance, it is said that when the change of the moon takes place near midnight, in all probability the ensuing quarter will be fine weather; when near to midday the reverse. These and the other rules there laid down can only be observed with the aid of an almanac, and then they cannot be im-

plicitly relied upon, though still a great help in forming prognostics of the weather.

The influence of the moon in diseases, in causing changes of the weather and on the tides, have been affirmed and denied and amply discussed on both sides of the question. It is not intended here to enter into a discussion of controverted points, but only to notice some phenomena of service to the agriculturist.

Staten-Island being surrounded by salt water, and partly bounded by the ocean, is subject to fogs. These are prevalent towards spring; and continue to occur until June and July. They are caused by the melting of the ice on the banks of Newfoundland, which are situated northeast of us; and though these shoals are several hundred miles distant, the ice and icebergs which ground there and accumulate thereabouts, have a very sensible effect upon the climate. The warmer regions to the southwest, cause northeasterly currents of air; and the progress of vegetation is retarded in the spring by cold northeasterly storms of wind and rain, and sometimes dense misty fogs unaccompanied by storms. In the springs of 1841 and 1842, the fruit trees by their luxuriant blossoms promised an abundant yield, but the hopes of the husbandman were not realized, on account of the cold northeasterly rain storms which nipt the germ in the blossom.

The tides around this island ordinarily rise and fall about six feet, but they always rise higher at full noon. It is high tide when the moon is in the southeast, and low tide when in the southwest. A long continued northeast wind produces high tides by blowing against the Gulf stream, retarding its course northward, and throwing its waters inwards upon the adjacent coast. If such a storm should take place near the full moon, extraordinary high tides occur, and then the farms on the south side suffer by the washing away of the banks and the fences. While the storms encroach upon the land in some places, the sands which are driven along by the waves collect and accumulate in others. Much damage was produced in the latter part of Dec. 1839, and the succeeding week in January, 1840, by two such storms.

Heavy northwesterly winds produce low tides, and when these occur, the inhabitants from the interior of the island flock to the south side in search of clams. Such a wind blew for several days in February, 1842, when in front of and within sight of the writer's farm, not less than three hundred people were engaged in digging and raking for this article of food, and every individual, whether man or boy, carried away in one tide two or more bushels each.

The snow storms which visit this part of the country come from the northeast, commencing in the southwest. Indications are seen by a snow bank in the south and southwest. One of these storms will extend as far south as the city of Washington, commence there before the snow begins to fall in Philadelphia, and it will snow in the latter place several hours before it begins at Staten-Island, thus progressing to windward, and by the time the storm commences at

Boston, we can sometimes see it brighten in the southwest, there giving signs that the weather is about to become clear.

In general the snows here are not deep and do not lay long; and the weather, though sometimes severely cold, is not long continued, but is through the winter variable, and in January and February, we have many warm days. Winter grain consequently suffers for the want of a continued fleecy covering of snow, but the worst month for grain is March, in which the weather is very variable, being hot and cold, freezing and thawing, windy and calm, and blustering with cold rains.

The spring of the year is generally cool and wet, retarding the operations of the farmer; and yet the season is in advance, and our harvest is usually two weeks earlier than the harvest north of the highlands on the Hudson river. In 1841, while the interior of the State of New-York was suffering with drouth, here we had sufficient moisture to keep the grass and grain in good condition, and at harvest time fine weather, and occasional genial showers to refresh the earth during and after housing the crops.

But on the other hand we sometimes have it too wet for the comfort and convenience of the farmer. The spring of 1841 was very wet, and it continued so until after planting late potatoes in June. The potatoe crop suffered, and was generally poor on that account; and although the Indian corn was retarded in its growth, it recovered by subsequent warm and favorable weather. The spring of 1842 was also unusually wet, but the rains were not cold. The consequence was that grass and grain were very luxuriant and promised great crops. The hay harvest commenced in June, but in July, before the hay was housed, there came on a period of wet weather, and there was not a fine clear hay making day until the eleventh of July. Then again there was rain on the 14th, 15th, and 16th. Though the hay crop was large, much of it was injured or lost by the bad weather. Part of the hay harvest was postponed until in August, and that was also injured as well as the oat crop by much rain, which commenced on the 6th, and it rained again on the 8th, 10th, 11th, 12th at night, 13th, 14th and 17th. This harvest, however, was unusually wet, and though a portion of the hay was lost, the yield was more than common, and many persons cut a second crop in September.

Thunder showers in summer sometimes rise suddenly in the north, and are wafted over the island in heavy gusts of wind, occasionally accompanied by a fall of hail stones. Thunder storms are not generally severe, and very little damage is sustained by them. At other times, summer showers, with or without thunder, rise in the southwest and spread over the island, or divide into two sections, one passing north about and expending itself on the Atlantic, while the other crossing the Rariton Bay, sweeps over the hills of New-Jersey, leaving the central and southern part of Staten Island untouched, although at first threatened with a deluge of rain. In 1839 and 1840, a number of such showers were observed in the months

of July and August, when rain was desirable, but they did not touch on the south side from the narrows to Princes' bay.

A change in the weather is indicated when the sun rises clear with a low bright arch in the east, overhung with clouds. If the clouds like a curtain gradually rise, the weather will become clear; but if the bright arch become clouded and close upon the horizon, a storm may be expected.

A storm or change of weather is sometimes preceded by a moaning of the water of Raritan bay, coming from the southwest, as it rolls upon the shore, even though there be no surf. A similar but louder moaning from the surf of the Atlantic rolling in from the east, is not indicative of a change. A low and horizontal smoke bank in the east and northeast is observed by the fishermen to denote an approaching storm. This appearance is caused by the smoke of the city of New-York, which is carried to the southward across Long-Island, and hangs in a low streak over the Atlantic, as seen from the south side of Staten-Island. The first time that phenomenon was observed by the writer after being informed by a fisherman, the smoke bank was low, narrow and long, extending as far south as Sandy-Hook, although the wind blew from the southward; and it was followed by a storm. He has observed it twice this season, (autumn of 1842,) when it spread, became thin, was gradually dissipated, and not followed by bad weather.

During a northeasterly storm of snow, wind, or rain, we look for signs of clear weather in the southwest and west. If the wind come out from the west or northwest it will certainly clear up. But when the wind is baffling, or backs, the weather will continue unsettled. Backing of the wind, is when it goes round against the apparent course of the sun, beginning for instance at the south, then becoming southeast, then east, &c. An east wind brings unpleasant weather, and will sometimes blow a day or two from that point, back into the northeast and bring a storm; but if an easterly wind should veer round by the south, it will be clear. Sudden showers in summer occur when the Jersey shore, seen from the south side of Staten Island, appears by looming to be quite near.

VALUE OF LAND.

On the north and east sides of the Island, near the water, where the daily communication with New-York is frequent and easy, land has been held high, and heretofore sold at extravagant prices; but that time is past, and speculation no longer regulates the value of land or farms. On the east and northeast point of the Island is the State Quarantine establishment, with its hospitals and other buildings; adjacent to which has arisen the large village of Tompkinsville, and a short distance to the south, is Stapleton, and that excellent establishment for sick sailors, denominated the "*Seaman's Retreat.*" In fact, the whole eastern shore is becoming almost a continued village from the Quarantine to the Signal poles at Fort Richmond, being occupied by country seats and town plots. The summer prospect from this part of the island, is a most inviting one. In looking to the south, we observe the Atlantic, from which a constant succession of

vessels of all classes and sizes are coming in and passing up the river and bay to New-York, while others are leaving that emporium of commerce, bound outward. There is a daily but a variegated and enchanting repetition of such scenes. If we cast our eyes across the bay and river eastward, Long-Island meets the view, and we see a rich and well cultivated part of Kings county, thickly settled; having numerous and elegant habitations along its shore, extending northward until the eye rests upon the city of Brooklyn. By a slight movement of the visual organ, the harbor and city of New-York are embraced within the panorama, which also takes in the distant hills of New-Jersey to the northward, and the vessels which crowd the Hudson river and disappear in the distance.

The north side of Staten-Island is more thickly inhabited than any other part; and for several miles is one continued settlement or succession of villages. Part of the shore is low, and the view confined and inferior to that of the eastern side. New Brighton is situated on the north east point of the Island on a northern slope with an extensive prospect to the north. In passing from that point, the road along the kills is thickly studded with elegant mansions, among which is an hospital or asylum for superannuated seamen, called the "*Sailor's Snug Harbor.*" Farther west is Factoryville, a large village, and a short distance beyond, is Port Richmond, formerly Mercereau's ferry, where a whaling company have their depot, and despatch their vessels to the Pacific. For a mile or more westward of Port Richmond, the road along the kill continues thickly inhabited by persons engaged in the boating, fishing and oyster trade; and the neat appearance of the small houses painted white, present an agreeable and picturesque view as the traveler passes near them in the steamboats which navigate these waters.

In the north and eastern parts of the island, the land is not estimated by acres, but by town lots or plots for country seats, and cannot give a general value to land in other parts of the county. A few years since since, *one hundred dollars per acre* was considered a fair estimate as the average price of land throughout the island. This was evidently too high; for although there are some good farms containing land worth more than one hundred and fifty dollars per acre, yet there is much swampy, some sandy, and some poor woodland worth but little. At the present time the writer is inclined to believe, that from *fifty to seventy dollars*, would be a fair average estimate of the value of land per acre for farming purposes, throughout the county. The farms situated near the water are generally more valuable than those of the interior or more remote from water communication, and the best farming land is on the south side.

TIMBER.

Staten-Island was once celebrated for furnishing superior white oak for ship timber, but there is very little standing of large size. The woodland that remains is not sufficient to furnish the inhabitants with fuel, the deficiency of which is supplied by anthracite coal. The trees which are natural to the soil, are several species of oaks,

and walnuts, chestnut, beech, birch, dog-wood, white-wood, gum, &c. Where the timber has been cut, and the land left uncultivated, the red cedar has come in and occupied the ground to its disadvantage, as the resinous foliage of that tree does not readily decay and form a soil like the leaves of other trees. There is also something uncongenial in the shade of that evergreen, as a cedar woods affords no grass or pickings for cattle. The trees however are valuable for fencing, and if they were not so slow of growth, they would be worth cultivating for their timber. The cedar plums, or seeds of the tree, are eaten by birds, and dropped along fences and in neglected places, where they grow without care.

Fencing materials are scarce on the island, both for posts and rails. These are made of oak, chestnut and red cedar, as far as the limited supply here will go. White cedar rails are now extensively used, and procured from the swamps in New-Jersey about Egg-Harbor, at from $6 to $8 per 100. There are some yellow locust trees in this county which furnish lasting posts for garden fences; but it is observable that the trees are attacked by insects, and do not thrive as they do in the lighter soil of New-Jersey, on the opposite side of Raritan Bay. The writer attempted to raise them from the seed, but the young trees do not appear to thrive here in a stiff clayey soil.

PLOWS, HARROWS, &c.

Plows, harrows and other farming implements are procured in New-York, where those of the most approved kinds are selected. Some are also made on the island, as well as carts and wagons. The size of farm wagons and ox-carts is not uniform; and in speaking of a load, the quantity would not be definite. The subscriber, in measuring his two carts and wagon, found that the wagon and one cart made at Bergen, in New-Jersey, measured within the body of the box, something over twenty-seven bushels; and the other cart, made at Poughkeepsie, over thirty bushels. The latter he had reduced to the size of the others.

FARM OR BARN-YARDS.

Farm yards should have a southern aspect, with a wing to the barn to protect the cattle from the northeasterly storms. This may be partially done by board fences on the north and east, or by a row of barracks containing hay or cornstalks. Hay being a staple and bulky article, is generally housed in barracks, as a cheap and convenient method of securing it. If these were erected on the northeasterly side of a barn-yard, the hay intended for domestic use would keep off the cold winds in the winter; be handy for foddering the cattle, and answer the purpose of more costly structures. Very little attention, however, has heretofore been paid to the position of farm-yards, some of which have unfavorable aspects, are unsheltered, or on sloping grounds, and lose all the liquid parts of the manure.

Cattle, in this county, require to be sheltered in winter but not housed. Hovels or sheds, in which they may have a dry place to lay down, are necessary for their comfort and health. A farmer having

a number of cattle, will find it advantageous to tie each animal at night to its place at the rack, to prevent the stronger from driving the weaker away from its food and into the weather. The largest and best barn in the county was built in 1841-2, by Joseph H. Seguine, at Prince's Bay, in the township of Westfield.

NOXIOUS WEEDS.

The principal troublesome and most prevalent weeds, are the large ox-eyed daisy, johnswort, wild onions and dock.

The Daisy, (Chrysanthemum leucanthemum.)—The daisy, when growing among clover or timothy, will not injure the hay made of them for domestic use if they be cut early to prevent the daisy from ripening its seed. The hay will be readily eaten by cattle in the winter, but the mixture of daisy lessens the price of such hay in the New-York market. If a field infested with daisies, be not attended to, they will grow and increase with astonishing rapidity, eradicate the grasses, and spread to the adjacent fields. The plant blooms in June, and ripens its seeds in July, and if not cut before the seeds fall, the crop will be greater the ensuing year; and when the quantity exceeds the clover or timothy among which it is growing, the hay made from a mixture of such grass and weeds is deteriorated in quality and is unsalable. The large white ox-eyed daisy is spread over the Island, and it will be difficult to eradicate it. If one person be careful to check its growth, his fields will be seeded by his less attentive neighbor, who may be indifferent to its existence; and when ripe, the seeds, which are small and light, are wafted by the winds to other and distant lands. When the daisy takes entire possession of a field, it makes very poor food for cattle, either green or dry, and can only be destroyed by breaking up the sward and putting in a hoed crop.

There is also a small daisy growing on a tall single stalk, which ripens later than the large daisy, but is kept in check by being cut generally before the seed ripens. The stalk is coarse and thick, has several branches towards the top, and numerous white blossoms as large as a finger nail.

Johnswort, (Hypericum perforatum.)—A few years since johnswort was very prevalent and was spreading. Cutting the grass in which it abounds before the seed ripens, will soon destroy it; but its coarse stiff stalk, if cut early or late, will not be eaten by domestic animals, and it injures the sale of hay in which it abounds. In 1841, it nearly all disappeared from the county, which has been attributed by some to the fact that the hay harvest occured mostly in the wane of the moon in July.

Wild Garlic or Wild Onions, (Allium vineale,) are a great pest, injuring the quality of the grain among which it grows, and the flour made from such grain; and in pasture lands causing the butter made from the milk of cows which feed upon them, to taste of onions. In the spring they start before all the grasses, and cattle turned into early pasture smell strong of the weed. In open fields it is easily exterminated by plowing and cultivation, but it keeps possession

along fences, water courses, stone heaps, ravines, and neglected places.

Dock.—Burdock (Arctium lappa,) is not plentiful enough to be considered troublesome, but common dock (Rumex crispus,) is abundant among the grass and grain. The last is a very tenacious and hardy plant. It has a long yellow tap root, and is not easily eradicated. I have seen it in the spring almost thrown out of the ground by the frost, with nothing but the tip end of the root beneath the surface, and yet recover its vitality and grow. Plowing will not destroy it, for if buried, sprouts will rise from it; and even if inverted it will nevertheless continue to grow. The only certain method of clearing grass and grain fields of this weed, is to go through them after a rain and pull up the dock by the roots. The prevalence of this nuisance may be diminished by attention in winter, to pick the seed stalk of the weed from the grain when on the threshing floor, and to remove those found in the hay when foddering cattle.

Other weeds.—The narrow and the broad leaved plantain are common here, but are not so prevalent as to become injurious.* Wild parsneps and wild carrots, which have probably originated from seeds grown in gardens, are spreading in some places, and ere long will require much time and labor to root them out.

The writer's farm was overrun with these weeds, when he purchased it in 1839. It is now (1842,) entirely clear of Johnswort, and the others are very much diminished in quantity.

CROPS.

Hay.—The principal staple production of Staten-Island is hay, which is both fresh and salt. The salt meadows are extensive in the townships of Northfield, Southfield and Westfield. The hay that is cut upon them is a short native salt grass, overflowed by the tides, and harvested in September. Such meadows are valuable, as they require no plowing nor seeding, and produce an annual crop of hay which, though not so valuable as fresh hay, is nevertheless a mine of wealth that is never exhausted. Farmers find it useful to have a portion of salt hay for their stock in winter, both for the salt it contains, and as a salutary change of food. Some persons have been induced to sell their fresh hay, and winter their cattle on salt hay at a less expense, but the animals have come out too poor in the spring to make it profitable, and the practice is abandoned.

Red Clover and Timothy, (Phleum pratense,) are the two principal artificial grasses grown here, and are sown upon winter grain. Timothy seed is sown at the rate of from eight to twelve quarts per acre; but as the open and irregular winters here are destructive of young grass and grain, half the quantity allotted to an acre is sown in September or October, and the other half in April, the ensuing spring. Clover, if sowed in the autumn, will be destroyed by the frosts, and is therefore sown after the spring frosts, generally in April, but it may be delayed until May. The quantity per acre, is from four to six pounds

* Plantago major, broad leaved plantain. Plantago lanceolata, narrow leaved plantain.

on winter grain with timothy. The latter makes the most salable hay in the New-York market.

Indian Corn.—The crop next in importance and amount to hay, is Indian corn. The variety raised here is the large white flint. If the weather permit, it is planted early in May. The springs of 1841 and 1842 were both so wet and cold, that much of the early planted corn did not thrive. Some of it rotted, and that which was replanted in June, subsequently overtook the first planting. But the crops of corn these two seasons did not give an average yield.

Corn here requires heavy manuring to be productive. It is manured in the hill with street dirt from the city of New-York, or a compost of that and barnyard manure, and sometimes with fish. The plants require two plowings and hoeings, or stirring the ground with the cultivator, to pulverize the soil and keep down weeds. The Dutton corn does not thrive so well here as the white flint, and is only raised in gardens, or for early corn to supply the market, or for family use while green.

Indian corn is usually planted in hills, from the 1st to the 20th of May, and is harvested in October, the stalks being cut down at the roots. They are then set erect, bound into small stouts and left in field for four or five weeks, when the stouts are opened, and the corn husked in the field in November, or they are housed and husked under cover in bad weather, or at other leisure times. The stalks are carefully bound into sheaves, and stored away for winter fodder.

Wheat.—Although the soil of this island has been under cultivation nearly one hundred and fifty years, it is still capable of producing good wheat, but it is not a profitable crop, as it requires strong manuring; and when it is raised, we are undersold by the cheap grain which comes from the interior down the Hudson river. It is however sown from the time of the equinox in September, to the first of November, in the ordinary rotation to bring the land into grass for hay. Thus corn or potatoes, being hoed crops, are highly manured, and if well managed are kept clear of weeds. The manure unexpended in the soil is sufficient for a crop of oats the ensuing spring, without additional manure. When the oats are cut, the ground is plowed and manured in the fall for wheat, and seeded with timothy and clover as before stated. Wheat is sowed at the rate of two to two and an half bushels per acre. In 1840 and 1841, the crops of this grain were injured with the rust. This disease has been attributed here to dense sea fogs, but the writer queries whether it may not be owing to some deficiency in the soil, as soda, potash, or lime, &c.?

Potatoes.—In favorable situations potatoes are planted in March and April, for an early crop, to supply the demand in New-York. The same ground may be cleared in July, and succeeded by a crop of ruta baga turneps. Late potatoes for a fall crop, are planted in the beginning of June, before the first hoeing of corn. The most esteemed varieties are the Mercers and the Kidney potatoes. The former are the most productive of these two varieties, but the kidneys bring the highest market price. The Rohan potatoe has been

raised among us, but it will not sell in New-York as an edible variety, and its cultivation is therefore principally abandoned.

Oats.—The oats of this county are not so heavy as more northern oats. They are however of a good quality, and raised in considerable quantities for domestic use, and for New-York. The facility of intercourse enables the farmer to send his oats to market when the Hudson river is closed with ice, and when prices range high. The crop is generally sown in April, after corn of the preceding year, about two bushels to the acre. It is harvested in August, and yields from twenty-five to thirty bushels the acre.

Rye.—This is a necessary crop principally raised for county consumption. Sown after oats, it requires manure, but not so much as wheat. Part of the value of the crop is derived from the straw which is of ready sale in New-York. The practice also, which is very general, of erecting barracks near the water to store hay for ready shipment, gives a value to rye straw for thatching the roofs. Rye is sown in September, at the rate of two bushels an acre, and is harvested in July, the succeeding year, yielding from fifteen to twenty-five bushels the acre.

Barley was formerly raised in considerable quantity for the New-York brewers, both here and on Long-Island, but after the Erie canal was completed the price was knocked down, and of late it has ranged so low as to deter farmers from raising it. The price per bushel is generally about twelve cents higher than oats, which at the time we write is 38 cents for one, and 50 cents for the other. The barley that is produced is still sold in New-York, or ground together with corn and oats, or buckwheat, to feed horses or to fatten cattle or hogs. Two bushels are sown to an acre in April, and the crop is harvested in the latter part of July, yielding twenty-five to thirty bushels the acre.

Buckwheat.—This is not a heavy crop here. It is sown in June, generally manured with fish, comes off the ground earlier than the North river buckwheat, and takes the first of the market before prices fall by abundance on sale. When ground with corn and oats, it makes good feed for horses, cattle or swine. This mixture is better for hogs when boiled. In sowing, a bushel and an half of buckwheat is deemed sufficient for an acre. From fifteen to twenty bushels per acre is considered a fair crop.

MANURES.

The expense of manuring the land in Richmond county is so great that farmers cannot compete with the productions of the new and cheap lands of the west, as to corn, wheat, rye, oats or barley. Here we must manure high or we get no crops, but the manure is not lost even though the first crop does not pay for it. The manures given to the soil are numerous, viz:

Street dirt.—This article is procured in New-York from the scrapings and sweepings of the streets, and is sold on account of the corporation of the city, at thirty cents the city cart load, (of 14 bush-

els.) Transportation by water adds twenty cents per load, delivered at the landings, and unloaded from the boats at the farmer's expense, thus costing him fifty cents per load. An ox-cart will hold two city cart loads. This kind of manure is generally considered a great fertilizer, but it is not uniformly good. That which is collected in the outer parts of the city where the population is not dense, where the streets are recently paved, or where they have been repaired, or where sand has been thrown up from laying water or gas pipes, is generally of inferior quality. At best, it commonly contains brick-bats, paving stones, sticks, old shoes, iron and other refuse materials thrown into the streets. Notwithstanding these draw-backs, street dirt is an excellent manure. It is a compost of earthy substances ground fine by the constant attrition of carts and carriages, with lime from new and old buildings, ashes occasionally thrown into the streets, the droppings of horses and other animals driven about the city, and many animal and vegetable substances from the markets and houses, &c. All these, when mixed together, form a fermentative mass containing all the elements which nourish vegetation.

The farmers generally purchase it throughout the Island, and some cart it several miles from the landings, and find it profitable. It is the practice here to mix it with barn-yard manure and let it all heat together. For instance, a farmer engages one or two freights of street manure in the spring for corn, and receives it in April; previous to which he carts out an equal quantity from his barn-yard, and heaps it in the field to be manured. When the street dirt arrives, he carts it from the vessel and covers the heap from the barn-yard. These lay together for three or four weeks, and become heated by fermentation, and in that state are turned over, mixed, carted, spread and plowed in, or most frequently used by the shovel full in each hill of corn or potatoes.

This method has been adopted from its practical benefits and not from theory, and yet it corresponds with the best theoretical views. The street manure is ground fine and contains soluble substances to nourish the young plants, while the coarse barn-yard manure is set into a state of fermentation, and as that is continued under the soil, the carbonic acid, or ammonia, or both, are evolved in the course of the decomposition, and add other ingredients to feed the growing and full grown plants.

Barn-yard manure.—This is generally a compost as formed here from the droppings of horses, cattle and swine, mixed with straw, cornstalks and sea weed. Such manure, when drawn out in the spring or autumn, and heaped until in a state of incipient fermentation, and then applied to corn, wheat or rye, &c. will of itself produce good crops without the admixture of street dirt. It is not every cultivator of the soil in this county, however, that has the ingredients for making such a compost.

It is the practice of some to clear out their barn-yards in the autumn, and prepare for making manure for the ensuing year, according to the materials at their disposal. Those on the south side of the Island, first litter their yards with sea weed. When the cattle are

yarded in the fall, their droppings are trod and mixed with their fodder, the sea weed and other contents of the yard. Some who have peat on their farms, cart it into their barn-yards and make a layer over the sea weed, while others use muck from swamps and ponds for the same purpose. When the horse dung accumulates at the stable door, it will heat even in winter, to prevent which it is scattered over the surface of the yard. Those who have a stock of hogs clear out their pens occasionally, and spread the contents, as in case of the horse dung. Thus is made a mixture containing most of the elements necessary for the growth of plants. They are intimately mixed by the poaching of cattle, remain till spring accumulating, but without heating, and must then be drawn out, heaped and set into a state of fermentation before they are applied to the soil.

In a barn-yard so prepared, we have the benefit derived from the manure of cattle, horses and swine; together with decomposing sea weed, straw, cornstalks, hay and peat, muck or the soil of roads and side fences, to absorb the liquids of the yard, and to be converted into soluble humus.

Such, however, is not the general practice. Most of our farmers neglect their barn-yards, because of the facility of procuring street manure, when by a little exertion they might make all, or nearly all, their lands required. Mr. William A. Seely, who has been enthusiastically devoted to agriculture, on a large farm in Southfield, near the Great Kills, has purchased no manure during his residence in the county; but by the course above described, has made annually an abundant supply, thereby improving his farm and putting his fields into a high state of cultivation.

Dr. Dana, in his "Muck Manual," estimates cow dung as the lowest in fertilizing qualities among animal manures, horse dung next, and hog dung he ranks with night soil. These may be all united in a barn-yard compost, which would be preferable to any one of the ingredients separately employed. Farmers among us consider hog excrement as one of the strongest and best manures for corn. But few persons, however, keep such a number of swine as to make a sufficient quantity of this fertilizing ingredient to employ it alone, and hence it is, or may be, advantageously spread over the yard and mixed with other manures.

Horse manure.—A compost sold for this article is manufactured in New-York, and purchased by some of our farmers. It costs more than street dirt, but is not so lasting in its effects. The sellers collect the principal material from livery and private stables; they cart it to the suburbs near the water, where they make a compost by mixing with it saw dust, spent tanner's bark, spent charcoal from rectifying establishments, &c. In warm weather these ingredients soon ferment, and they become so hot as to burn and exhale much of their gaseous substances. When there is no call for the manure, the manufacturers keep turning it over to arrest the fermentation, and to make it light and spongy. In this condition, when sold, a load soon settles down into a much smaller quantity. When the farmer receives it, if heated, it should be immediately applied to the land, un-

less it be wanted to mix with coarse barn-yard manure to act as a leven, to set it also into a state of ferment, that both may be used together. It is quick and active in its operation, but its strength is spent with the crop to which it is applied. One of the inconveniences of this factitious manure is the abundance of foul seeds introduced by it. Street dirt, however, is subject to the same objection, particularly in summer, when ever kind of garden, fruit and flower seeds, thrown into the streets from the houses and markets, abound in it.

Sea Weed.—This is principally collected by farmers who have a water front on the south side of the island. It is driven up by storms and winds blowing on shore, and must be secured as soon as possible, lest a change of wind and tide sweep it away. In some coves and sheltered places, it washes up and accumulates in greater quantities than the owners require, when they allow others to cart it away. This is particularly the case at the mouth of the Great Kills, on the shore of Mr. Seely and Major James Guyon.

Wherever it can be procured, sea weed is employed to make manure. It has been carted from the shore, and plowed in as a green crop with advantage, but this method cannot be followed on account of the uncertainty of procuring it in sufficient quantity when wanted. The inhabitants here do not rake and collect it as they do in some of the creeks and bays on the south side of Long Island, but depend upon that which drifts on shore. Hence there is an uncertainty in its supply, and whenever it is collected it is carted and spread over the barn yard, or thrown into the hog pens. It is excellent litter for swine, and with a stock of them, and plenty of sea weed, manure can be made very fast in summer. The animals eat some of it, and keep rooting it about and mixing it with their dung, and it soon rots and makes a valuable manure for corn or any other crop.

Sometimes a variety of sea weed is driven upon the shore in summer, and is here called chowder. It principally consists of several species of conferva, which are soft and mucilaginous, beat fine by the waves, and of the consistence of pumice, and would not hold together if it was not for some of the alga and fuci mixed with it. If a quantity of this mixture of marine plants be heaped, in a few days it will ferment and become hot, and soon decompose. Loudon declares that sea weeds will not ferment, but the writer has witnessed what he states.

Fish.—The Mossbonker, (Clupea manhaden of Mitchell,) a species of herring, is a migratory fish that frequents the shores of this and Long Island in immense numbers in the month of June, are taken with the seine, and sold by the fishermen at seventy-five cents per thousand. The farmers purchase them on the beach at this price, and cart them away to be applied to the land for manure. In size they are from eight to ten inches long, and at this season very fat, so that by exposure to the sun they melt down into an oily mass. The most common method of employing these fish, is to spread them from the cart thick upon the land with a shovel, and immediately plow them under. They are so spread upon a field of young corn, and they make it grow most luxuriantly. They are sometimes

left to decompose and rot upon the surface, when the greater part of their value is lost by exhalation.

As mossbonkers are in season at the time of sowing buckwheat, they are frequently applied as a manure for this crop; and at the rate of eight or nine thousand to the acre, they will without any other manure have the desired effect. It has been observed, however, that the soil so manured is deprived of something more than the fish applied, as it becomes deteriorated, and is left weedy and sour. This method of appropriating fish has been adopted from the facility of procuring and the little labor of applying them. But it is a wasteful and most offensive way of fertilizing the soil, as in plowing the fields to bury the fish, they are not completely covered, many being left on the surface or sticking up between the furrows. In a few days they begin to putrify, and the stench is wafted by the winds to a considerable distance, to the annoyance of all the neighborhood. Myriads of large green flies are engendered by the putrid fish, and they spread over the adjacent fields, light upon the fruits of the season and give them a fishy taste.

The best method of converting mossbonkers into manure, is to make a heap with alternate layers of fish and soil, or peat, or swamp muck, and let the heap remain until the ensuing spring. The soil or peat absorbs the liquid and gaseous matter as the fish decompose, and in due time the whole heap becomes a fine inodorous mass of excellent manure. Few persons, however, who manure with fish, will take the trouble to heap them and wait a year before they are given to the land, preferring to take the easiest and shortest method of employing them, though highly offensive to themselves and others.

Poudrette.—This article is manufactured in New-York, from night soil, and rendered inodorous by mixing it with peat and other substances which are kept secret. It is supposed that ashes, lime, or plaster of Paris, are some of the ingredients employed. Ammonia is an important and principal agent in poudrette as a fertilizer. It arises spontaneously from the decomposition of urine in sinks and stables, and when the contents of these are exposed to the atmosphere, much of their ammonia is dissipated in gaseous exhalation, unless arrested by chlorate of lime (bleaching salts,) or ground plaster of Paris, (gypsum.)

In the "Cultivator," (vol. 9, page 156,) it is said that poudrette is from *twelve* to *fifteen* times as strong or efficacious as good stable or barn-yard manure. This may be the theory of the subject, but here it has been found otherwise in practice, the article being so diluted with peat or other earthy substance as to reduce its strength and value. It is nevertheless, if well made, a good fertilizer, is not bulky and may be conveyed to a distance in barrels at a small expense, in comparison with the street dirt and horse manure, collected in New-York. This article has been introduced into Richmond county, and used to a limited extent, but the farmers generally do not appreciate its good qualities, though we learn that it is extensively and beneficially employed on Long-Island.

Lime.—Lime has been tried here to a considerable extent, to the satisfaction of some and disappointment of others. That which is made by burning oyster and clam shells has been principally employed, and is procured in the adjacent state of New-Jersey, and in the city of New-York. The abundance of clams and oysters consumed in this city, produces a great accumulation of shells, and it has been found profitable to burn them into lime. This is an inferior article for mason work, but it answers a good purpose in being added to a soil deficient in alkaline earth.

Much has been said and written on the application of lime as a manure, but it is rather one of the constituents of a good soil. It is found by analysis in wheat, and should be an ingredient in manures for that crop. Here some of our farmers have thought that lime was to perform all that was necessary in growing wheat, and have applied it copiously and alone, without reaping the expected benefit. Its employment is nevertheless useful in sweetening cold sour lands, and modifying stiff clayey soils, such as we have on this island. The shell lime has been purchased at from seven to nine cents the bushel, and applied at the rate of from thirty to seventy bushels per acre. A neighboring farmer purchased a boat load of shell lime, as he thought, but on landing it, found that two-thirds of it was a body of unburnt, and half burnt shells. Such pieces of deception set farmers against the use of new materials as fertilizers.

An inferior quality of lime has been purchased at the chemical works in New-York, at three cents the bushel, and applied to land in Richmond county. This is the spent lime employed in the manufacture of chlorate of lime or bleaching salts, and has lost its strength. It smells so strong of chlorine, which is injurious to vegetation, that its benefit as an alkaline earth is at best but doubtful. The writer has preferred the application of stone lime in barrels, burnt from the secondary limestone at Athens, on the North river. This he has had slacked when it was wanted, and mixed with other ingredients before its distribution upon the land. Lime in barrels, costs more than shell lime, but the expense of transportation is less, and when it is slacked it increases in bulk so much, that one barrel will produce from two and a half to three barrels.

Potash, Soda, Nitrate of Soda.—The writer has pursued various methods in applying these articles by way of experiment, during the past and present year, with results yet in part to be ascertained. Unleached wood ashes have been used for many years on Long-Island, as a fertilizer, its utility depending upon the potash it contains. Liebig states that if a soil be deficient in potash, you may employ as manure, every other ingredient necessary in a crop of grain, and yet that crop be a poor one. Potash is therefore very essential in improving the fertility of land. He also observes that soda may be substituted for potash with equal advantage. The best of the green sand or marl of New-Jersey, contains from ten to twelve per cent of potash, to which it owes its fertilizing powers, and these are improved by the addition of lime. Not being able to procure a sufficient quantity of unleached ashes, nor to obtain the Jersey marl, the

writer undertook to make a compost in imitation of it, of lime and sand and potash, and gave it as a top dressing to one of his fields, with, as he believes, a decidedly beneficial effect. He used in that case, a portion of caustic potash and some salæratus, or subcarbonate of potash, and Athens lime, all purchased in New-York and transported in barrels. The result and further particulars, he has promised to communicate to the editors of the "Cultivator," at Albany. The other saline articles have been applied this autumn, (1842,) the effects to be ascertained next year. The soda employed was the white soa-ash obtained from barilla, and the nitrate, the East India saltpetre or nitrate of soda.

A few husbandmen in this county have applied the leached or spent ashes of the soap boilers. The article has been purchased in New-York at one dollar to one dollar and a quarter, by the city cart load, where wood ashes have been used; and at seventy-five cents to one dollar, where barilla is the alkaline material in making soap. Dr. Dana informs us (in his Muck Manual,) that the active ingredient in spent wood ashes, is the silicate of potash; so where soda is employed, the residuum must contain the silicate of soda. As these ingredients only enter into the composition of straw and the stalks of plants, they are better for grass than grain. If applied to grain, spent ashes should be mixed with barn-yard or other manure to produce a good crop. The writer has preferred the application of ground glass as recommended by Mr. William Partridge, (Cultivator, vol. IX, p. 112,) as containing a greater quantity of silicate of potash than leached ashes, and that too in smaller bulk and at less expense.

Manure is the life of agriculture. The foregoing articles enumerated, are the principal forms of manure employed in this part of our country. Others may be found and introduced. Here and in other parts of the state where land has been under cultivation a century or more, the soil is exhausted and requires renovation, which may be done by a judicious application of fertilizing ingredients. The study of manures should be one of the employments of the farmer, to make and mix and apply, as on these depend the fertility of his fields and the value of his crops. Some farmers have erred by adopting and adhering to some single article highly recommended, as lime, spent ashes, &c. without reflecting that plants are composed of various and different elementary substances. The ingredients usually given to the land as manures, are not appropriated in the forms applied, but are first resolved into their elements, and becoming soluble in the moisture of the earth, are absorbed, circulate with the sap, and give nourishment to plants.

GEOLOGY OF RICHMOND COUNTY.

The basis of Staten-Island is a primitive magnesian rock, of green serpentine, similar to the rocky peninsula of Hoboken in New-Jersey. Some of it is hard and compact, and capable of taking a polish, while other portions of it are soft and pass into talc and soapstone. Veins of amianthus are found in it, and beautiful long fibrous asbestus. Carbonate of magnesia, in a pulverulent form, has been collected

from narrow rifts and veins of the rock, and a white incrustation, found both here and at Hoboken, was long since ascertained by Dr. Bruce of New-York, to be the hydrate of magnesia. (See Bruce's Mineralog. Journal, page 26.) Crystals of chromate of iron are also diffused through the rock, but not in sufficient quantities to be employed in the manufacture of chromic yellow, (or chromate of lead.)

On the hills near the quarantine establishment, a great variety of magnesian minerals may be obtained. The serpentine rock is laid bare on the side hill near the road south of the Quarantine, and at its base, in the road near the Black Horse tavern; also in the low ground south of Richmond village, on the road by the Fresh Kills. Thus the whole of the hilly part of the county appears to be underlaid with magnesian rock.

The rocky portion, and some other parts of the island, are overlaid with an upland diluvial formation of rocks, stones, gravel and sand, covered with a stiff clayey soil. The surface rocks and stones and detached boulders, are principally greenstone, evidently brought here from a more northern region. Among them are some granite and gneiss rocks, occasionally portions of graywack, and some pieces of red sandstone. But the writer in all his walks and excursions, has not seen a single specimen of serpentine, either on or under the surface, except at places where the base rock crops out. The soil of the island is therefore not a magnesian soil, but one derived from other sources than the base rock. The subsoil is in most places a hard pan of clay, gravel and water worn stones and rocks, like those found on the surface. The surface rocks are not so numerous as to furnish materials for stone walls, of which there are only a few in the county.

On the north side of the island, near Port Richmond, a stone quarry has been opened and is now worked, and the material sold in New-York for granite. It is hard, and looks well when hammered into blocks for masonry, and may answer all the purposes of building; but the rock is not granite, but a continuation of the greenstone formation of the Pallisadoes on the Hudson river. It will be found on future explorations, that it is underlaid by sandstone, like the same formation in New-Jersey, and the sandstone probably resting on serpentine, and the serpentine on granite. The reddish soil at the base of the hill near the Black Horse, is decomposed sandstone. Red sandstone has been seen in the banks on the south side of the island, and in a piece of rising ground near Rossville, on the road from thence to Richmond.

While most of the soil of the island is clayey, it is not entirely so. New Dorp plain, in Southfield, is a sea alluvion of sand and gravel, with a light loamy soil; the land in possession of able farmers, who raise wheat and corn in abundance, and make large quantities of hay.

The soil in Westfield is partly clayey, but the west and southwest portions of the township have a light and sandy soil, and in some places it is reddish like that of New-Jersey, formed from disintegrated sandstone. There are few large farms in those parts of Westfield. Most of the inhabitants own small tracts or mere garden spots, where the light soil is adapted to melons, cucumbers and other vegetable

productions calculated for the New-York market. These people also occupy themselves in fishing, digging clams and raking oysters.

Few or no minerals of any value have been found in the county. Near Rossville, in the township of Westfield, not long since, some persons were possessed with the idea of a coal mine, because some pieces of coal had there been found. But upon examination it proved to be lignite, or wood carbonized by the decomposition of pyrites, similar specimens of which are seen in clay beds on Long-Island and in New-Jersey.

During the last war with Great Britain, while the forts at the narrows were in process of erection, detached pieces of pure virgin copper were found in excavating the hill below Fort Richmond on this island. They were deep among the materials of the upland diluvium, and were not accidentally dropped there, but must have been brought from the north.

In the hilly parts of the island, in the township of Castleton, there are beds of hematitic iron ore. This deposit of ore was once worked, but the per centage of iron in it is so small, that the raising it from its bed is not profitable and has been abandoned.

From all appearances, the rocky formation of Richmond county is coeval in part with the formation of the serpentine rock of Hoboken, and in part with the greenstone or trap rocks on the Hudson river, and the red sandstone which underlays them.

The hilly part of the island is principally in the township of Castleton, the highest part of which, near the Quarantine hospitals, is 307 feet above tide water. A spur of the hill extends along the eastern shore to Fort Richmond, in Southfield. From thence it falls off to the southwest to New Dorp plain, which extends several miles and terminates at the Great Kills. The remainder of the island is rolling land, none of it higher than from one hundred to one hundred and fifty feet above the sea. These low hills have no precipitous sides, and are susceptible of cultivation over the whole surface.

There are some swamps and uncleared bog lands containing peat, but no one except William A. Seely, has made any use of peat. He drained such a swamp, and by littering his hog pens and barn-yards with it, he has supplied himself, in conjunction with sea weed, with an abundance of manure. Some other farmers, however, have used the muck from the bottoms of ponds in their wood lands, when they were dry in the autumn, and thus added to their stock of manure, by composting it with the contents of their barn-yards and hog pens.

The storms of autumn and winter throw upon the southern shores of the island, a black sand which may at times be gathered in large quantities. This is not an earthy but a metallic sand, as on examination it appears to be fine particles of iron ore, and may be separated from the quartzy sand with which it is mixed, by a magnet.

The roll of the ocean has an action upon the stones and gravel, not only in wearing away their angles, but in reducing many of them to elliptical shapes. Some of these are so handsomely formed and polished by attrition on the sea shore, that the subscriber forwards herewith a few picked up on his water front. If the Society have

no place for the display of such specimens, they may be deposited in the State Geological Cabinet at Albany, that geologists may study the action of water and the roll of the ocean upon stones.

AGRICULTURE OF SENECA COUNTY.

BY SAMUEL WILLIAMS, WATERLOO.

THERE is perhaps no county in the State of New-York, whose fine picturesque configuration, fertile soil and mild salubrious climate, so much entitles it to the character of the best county in the empire State, as Seneca county.

That part of the county north of the Seneca outlet, is a succession of parallel ridges from 30 to 100 feet in height, running north about 10° E. These ridges are composed of sand and gravel, green and red sandstone, limestone pebbles and granitic boulders, with such a redundant admixture of alluvion, as to give them a deserved character for enduing fertility. The valleys between those ridges are more clayey, but partake largely of the component matter of the ridges themselves.

South of the Seneca outlet the county is bounded east by the Cayuga and west by the Seneca lake. Through the center of the county north and south, between the lakes, the land ascends gradually from a few feet above the level of Seneca lake, at Waterloo, to 400 feet above that lake at Ovid village, 16 miles south. This point may be considered as nearly the summit level of the county, the land descending gradually from the summit ridge to either lake.

Our State Geologist, Dr. Lewis C. Beck, has said that the mineralogy of Seneca county is "exceedingly limited." The common acceptation of this assertion would only convince the scientific farmer, of the superior adaptation of its soil to agriculture, but if meant to extend to the economical Geology of the county, the assertion is contradicted by the facts, as no county in the State is richer in lime, marl and gypsum, than the county of Seneca.

South of the Seneca outlet the limestone ledge comes at or near the surface in many places, covering an area of many miles. There is also the Tully limestone further south and a water lime series of the "saliferous group," at South Waterloo, which has of late been burned and ground for use. Extensive quarries of gypsum are fortunately situated on the bank of the outlet, below Seneca Falls, directly on the banks of the Cayuga and Seneca canal. These quarries supply all the domestic demand, with a considerable demand for export to Pennsylvania, by the route of the Seneca lake and Chemung canal.

South of Seneca outlet, the granitic boulders and red sandstone of the north almost entirely disappear, giving place to fragments of Tully limestone; in fact, compact blue limestone is almost the only

stone used for walls in Seneca county, if we except the blue and olive shales, also more or less calcareous, which are formed in those ravines which debouche into the Cayuga and Seneca lakes.

Timber.—North of Seneca outlet the timber is beech, maple, elm, whitewood, &c. &c. with the exception of a small extent of sandy land in the N. W. corner of the county, covered with the *Resinosa* pine and the *Tinctoria* oak. South of the outlet and along the shores of the lakes, the white oak and hickory abound; but the largest portion of the county is what is vulgarly called beech and maple land; the water courses which form the ravines, as they deepen at the lakes, are occasionally marked by the tonsured top of the *Canadensis* pine, and the calciferous banks of the lake, is sometimes ornamented with a delicate growth of the red cedar, *Tunipertus virginiana* and *Sabina*. In native botanical productions, Seneca county is perhaps not behind any other county in the State. The State Geologist, Mr. Hall, dilates with kindly enthusiasm, on the number and beauty of the wild flowers which came within his notice, during his official tour through this county.

Soil.—The soil north of the outlet has been noticed; south along the lakes it is a heavy alluvion clam loay, in some places without stone, shale or gravel; the ridges are sandy loams, rich with alluvion; the more level land is inclining to a clay loam.

Climate.—Seneca county has much less snow in winter and less rain in summer, than the counties east of Cayuga lake. The thermometer may sometimes rise as high in summer, but it does not fall as low in winter as at the city of Albany, by 10 degrees.

Productions.—Owing to its warm dry climate, this county is better suited to the production of grain than grass. The meadows produce a heavy crop, but the subsequent dry weather is a great drawback upon pasturage. It is true that owing to our short mild winters, cattle and particularly sheep, may be wintered here at less expense than in what is called the dairy counties; but the excess of summer pasturage there, gives them the palm for butter and cheese; still great attention is now paid here to the improvement in the breeds of horses, cattle, sheep and hogs. Wheat and clover seed, and to this may now be added flax and flax seed, may be said to yield the Seneca county farmer more money than all his other productions. Still, for the production of Indian corn, barley, pork, wool, &c. Seneca county is as well adapted as any county in the State. Clover and timothy are the only grasses cultivated here. Of roots, potatoes are raised of medium crop and good quality; the sugar beet and carrot also attain their most luxuriant growth; they are better suited to our heavy tenacious soils than the ruta baga.

Value of land.—Farms here sell at from $30 to $80 the acre, but many farmers would not molest their tranquility and positive enjoyment, by selling at any price.

In relation to the "changes necessary to advance the agricultural prosperity of the county," I reply, let more general intelligence be infused among the rural population—let every farmer subscribe, first of all, to an agricultural paper; that he may there learn the compo-

sition, office and economy of manures, so that he may raise the same quantity of Indian corn on one acre of land, with the same manure and half the labor it now takes him to produce it on four acres.

AGRICULTURE OF WASHINGTON COUNTY.

BY G. J. BAKER, FORT ANN.

1st. *Aspect of the County.*—This county as you are probably aware, is somewhat of the shape of a triangle, of which the northern part forms the apex. Now cut off this northern part by a straight line, beginning at Patten's mills, running on the southern boundary of Fort Ann, through the north of Hartford and the center of Granville, and you have the two natural divisions of the county. The northern part is quite uneven, hilly and mountainous, yet comprising many noble farms and much valuable pasture land. It has three large ranges of mountains, which divide it into two sections. The first range begins at Lake George, follows the east border of that lake until it meets the middle range, running from Battle Hill near the southern part of Fort Ann, by the west border of Lake Champlain, at the junction of the two lakes at Ticonderoga. The western range begins at the termination of the Hartford hills, and runs through Hampton to the east border of Lake Champlain. The two valleys between these ranges comprise the farming land. The high lands afford much grazing, large quantities of *iron ore*, and an incredible amount of pine and hemlock lumber, and *cord wood*. The soil in the valleys is generally clay or muck, and on the upland, sand, gravel, loam, and slate. The principal products are lumber, iron, and wool. The two former are marketed at Troy and Albany, and the latter generally sold to "wool buyers," who send it to the Massachusetts and Connecticut manufacturers, mostly the former. The southern part is more level, or gradually undulating, and contains but little or no waste land. It is emphatically an agricultural section. Its soil is varied, as clay, marl, loam, sand, gravel, slate and muck. Wool and grain are the principal products. The former is marketed by the same hands as that of the northern part, and the latter is consumed either by northern lumbermen, or by those of Warren county, and if there be any surplus it is sent to Troy or Albany. The timber of the northern part is generally pine, hemlock, spruce, maple and beach, while that of the southern is nearly the same, save the pine and spruce. The value of the land of the former is from $2.50 to $25.00 per acre, while that of the latter ranges from $15.00 to $60.00 per acre.

2d. *The favorite breeds of Cattle, Sheep, Swine, &c.*—Although of many things I can speak with pride of the farmers of Washington, yet when I come to *this*, justice demands that the truth should be told, both for the benefit of themselves and others. In truth, save a

noble few, they have no favorite breeds of cattle, sheep, &c. unless we shame them by applying that appellation to the miserable breeds they keep. From this sweeping clause, sheep must be excepted, as most of the lots are Merino and Saxony, and those of excellent quality. A comparatively small number of farmers have a mixture or cross of the native stock and short horned Durham, or Devonshire cattle, which answer a good purpose, and are probably the best for the county; and also a few crosses of the Berkshire and Byfield hogs, which are also good; but save these, our stock is miserable. Our cattle as small as *sheep*, and our *swine* capable of digging to *water in the driest season*. But great improvements are just in embryo in this department, and the praise of it must be awarded to the *even yet* feeble Agricultural Society of our county, and which bids fair to be of the highest importance.

3d. *What agricultural changes are requisite to advance the prosperity of the county.*—These are many, and but few will be suggested. 1st. Draining and improving low and swamp land. 2d. In agricultural implements, and in the change of human labor to that of brute and inanimate labor. 3d. In orcharding and fruits. 4th. In the rotation of crops. 5th. In applying science to agriculture. To discourse on these and many other changes which would be profitable, would furnish quite a treatise; sufficient for the present is the notice.

AGRICULTURE OF WESTCHESTER COUNTY.

BY TYLER FOUNTAIN, PEEKSKILL.

The surface of Westchester county is uneven and hilly, but not mountainous except in the northwest corner, which is the commencement of the "Highlands." There is a group of hills on the east side of the county, in the towns of Lewisboro' and Poundridge, and another on the west, in the towns of Cortlandt and Yorktown. They are made up of rocky bluffs, steep hills and precipices, but the valleys are well timbered, and are valuable on that account. There are other groups of rocky hills in the interior of the county, but they are not extensive. There are no extensive flats in the county. The arable land is made up of ridges, knolls and valleys, and on many of the ridges are pleasant flats and sloping fields, which make fine farms and sites for buildings. On the surface, and intermixed with the soil, are fragments of rocks and stones more or less rounded by attrition, and of these the fences are mostly made. There are ledges of rocks that "crop out" at intervals in all parts of the county. The soil is various, but the greater part is a gravelly loam.

Good farms in this county, are worth from eighty to one hundred

dollars the acre; but some are valued at two hundred dollars, and others can be bought for thirty dollars the acre: soil, improvements and location making the difference.

The articles raised for the New-York market are potatoes, hay, oats, butter, pork, beef, calves, lambs, poultry, eggs, buckwheat flour, corn meal, apples, cider, and many articles of less importance. Wheat and rye are raised here, but not enough for bread for the inhabitants. There were 35,000 bushels of wheat, and 99,000 bushels of rye raised in the county in the year 1839, and there were 48,000 inhabitants; that is less than three bushels to each inhabitant. Many of the farmers, and all the inhabitants of the villages, use wheat flour raised out of the county. Wheat is an uncertain crop here, and the farmers can do better by raising other crops. The population within five years past, has increased 10,000. The number of horses has increased 1,000, neat cattle decreased 8,000, sheep have decreased 10,000, hogs have increased (according to the official accounts,) 131,000.

There is but little attention paid to the breeds of horses, cattle, sheep or swine. If an animal possesses a good form and size, there is seldom any inquiry concerning its pedigree. Symmetry and speed in the horse are all the requirements necessary. There are but few cattle raised in the county. The farmers send their calves to market. A good calf, five weeks old, commonly sells for five dollars, but the most of them are sent to market before they are four weeks old; and I have known calves sent to market before they were ten days old, and sell for five dollars each, when veal was in great demand. Farmers buy their cattle of drovers, who get them in the western parts of this State, Vermont, Massachusetts and Connecticut. Oxen raised in Connecticut are considered the best; they appear to be of the Devonshire breed, and possess great docility. There was a very good breed of white hogs in the county, but the Berkshires have been introduced, and it has injured the farmers. Their small size, black bristles and dusky skin, render them unprofitable. They will not sell so readily, nor for as much, in the New-York market, as white skinned hogs. Sheep are kept for rearing lambs. The large breeds are considered the best. Wethers are often bought in the summer, fattened through the fall, and sent to New-York in the winter or early in the spring. Wool is of but little value here; some farmers have it manufactured for their own use. A good lamb, three months old, commonly sells for three dollars.

At the beginning of the present century, the aspect of the county was dreary, compared with its present appearance. At that time, the arable land was worn down by constant tillage; the crops were light; the fences poor; bushes were growing about the fields; loose stones lay scattered over some of the best lands; the fences were made of time worn rails almost hid with bushes. Two months of the year were commonly spent by the farmers in making cider, and it was considered the most important business. Almost every farmer had a still which held about one barrel, to distil his cider with.

The farmers continued to distil their cider until New-England rum

became cheaper than whiskey; then they abandoned their stills and sent their cider to New-York. The sloops at all the landing places along the Hudson river, were principally loaded with barrels of cider. Their freight at that time consisted of butter, pork and cider; but along the Sound or East river, as it is called here, in addition to these articles, potatoes were an important freight.

About the year 1820, temperance societies begun their operations; the business of making cider began to decline, and at present there is but little made, and that mostly for vinegar. Within twenty years past agriculture has rapidly improved; the land has been cleared of bushes; the stones made into fences; many new and some elegant houses have been built; swamps drained, and the face of the country now wears a pleasant aspect; but the farmers do not pay that attention to enriching their lands which is necessary for good husbandry. The products of the county can be doubled, and with proper management, quadrupled. The greater part of the land is yet poor; they till it too much and pasture it too close; they are too anxious for the present, and regardless of the future, and they overstock their farms, which is the worst thing they can do to them. If the leaves of clover and spires of grass are continually cropped to the ground by pasturing or otherwise, the roots will die and the land become poor. Enriching substances are within the reach of every farmer; the swamps are numerous, but few farms being without them, containing plenty of muck, and yet but very little of it is used as a manure. They say they cannot spend time in getting it, nor to make a compost heap, nor even to take proper care of their barn-yard manure! They are afraid of an outlay, and seem to think money paid out for getting manure will never be restored. But in that they are mistaken. It would be doubly restored the first crop, and the land, with proper management, would show the effects of it many years. Gypsum has been used ever since my remembrance, but its effects of late appear to me to be imaginary. It has been used so long, it seems to have lost its fertilizing effects. I top-dress most of my grass fields every year, leaving a portion of each field; and not more than one year in ten is there any perceptible benefit arising from it. If the farmers would take as much trouble in collecting animal and vegetable manures as they do in getting plaster, it would be better for them. Every farmer should make a heap of compost during the year. There are intervals of time, without interfering with other work, when enriching substances can be collected and put into a heap, and in the fall of the year or during the winter, applied to grass lands as a top-dressing. The winter storms will press it to the surface and cause vegetation to spring up early and rapidly. When land is top-dressed in the spring of the year, the manure lodges upon the old haulm or lies loose upon the ground. The scorching sun at this time of the year causes much of the enriching substances to evaporate, and but little benefit arises from it. It can be partially mixed with the soil by harrowing, but if a drouth succeeds, its effects are in a measure lost. A farm can be enriched by top-dressing with manure, cheaper and sooner than to apply it in any other way. But if hoed

crops are the object, the manure should be plowed under and mixed well with the soil. Some farmers are experimenting with lime. I have, by way of experiment, made use of 2,000 bushels within four years past, and I have concluded it does not benefit my farm, and I shall give up the use of it until I can see some benefit resulting from what I have applied.

The soil of this county is so full of stones, and the surface so uneven, that the cultivator, drill-barrow, press-harrow, &c. are seldom used. The plow, common harrow, hoe, potatoe hook and hand rake are the most important implements in raising and gathering the crops here. The revolving horse-rake is used by some. Miner and Horton's plows, with but few exceptions, are the only plows used in this county. In the year 1840, one of them was sent to Constantinople, and the Sultan's Secretary of State ordered others to be made after the same model, and expressed great satisfaction in his letter, which ran thus:—"I am happy to have it in my power to express to you how sensible we are of the philanthrophic spirit which dictated," &c. (N. Y. American, Nov. 28, 1840.) Their plows have taken premiums in the states of Pennsylvania and Delaware. They have taken premiums at different times at the American Institute. In October last the first premium was awarded to Miner and Horton. Their plows are sent to different parts of the United States, and several hundreds were sent to Mexico last spring, and one of them was purchased by an Italian as a sample for his native country.

The farmers have no particular rotation of crops, every farmer following his own plan; but the most common rotation is corn, potatoes and oats. Sometimes wheat or rye are sown after corn or potatoes. Clover and timothy seeds are sown in the spring on the wheat, oats, or rye, in every rotation. Manure, if applied at all, is spread on the sod, and plowed under, except where wheat is sowed; then the manure is applied to that crop; it is taken from the yard after it has lost half its substance by rain and evaporation, and spread on the surface before sowing the wheat. The manure and wheat are harrowed in together.

We have all the varieties of timber suited to this climate, but the most prevailing are walnut, chestnut and oak; we have a few of almost every species of evergreens, and many of the inhabitants are planting groves about their houses.

AGRICULTURE OF INDIANA.

BY SOLON ROBINSON, LAKE COURT HOUSE.

Whether I can make an article worthy of a place in your next volume of the "Transactions," I am not certain. But "I'll try" to answer the third inquiry as applicable to my own vicinity, the north western part of Indiana. I must first give you an idea of the "prominent features" of the country.

This is the prairie region. The word prairie is French. The general impression, at least in the eastern States, is, that it means meadow; and that meadow means "level, wet, grass land." This impression is wrong; prairie means a country bare of trees; and in my opinion, it is the natural state of the land as left when the "great waters" receded from it. For instance, if the Falls of Niagara were swept away, the bed of Lake Erie would be a prairie. In time it would grass over—the timber would encroach upon the edges—the seeds of some trees would be wafted by the wind to the center, and others carried by animals, and by and by groves would spring up here and there, dotting the sea of grass like islands in the sea of water.

None will suppose the bottom of the lake level, neither are the prairies; they are as commonly undulating as any other land; neither are they generally wet. In this particular, the soil varies as much as it does in any part of the State of New-York. That is, from the extreme of deep morass, covered with a growth of coarse grass and weeds, twelve or fifteen feet high, to the gravelly or sandy barren knoll—and here the word "barren," suggests an idea.

Large tracts of land in the prairie region are covered with a growth of scattering timber, void of undergrowth, and frequently not unlike an orchard or artificial park, the ground covered with grass; and these tracts are called "*barrens*;" but why so called, when the soil is of the best quality, I cannot explain.

Between the above extremes of quality of prairie land, there is of course almost every variety of soil suited to the wants of the husbandman. There is one universal characteristic—that is a deep, strong, grass sod, and a mellow, loose, black vegetable mold. This has a depth varying from five inches to five feet, and a substratum varying from loose sand and gravel, of unknown depth, to that of the stiffest yellowish clay, slightly mixed with slate and sand gravel, or rather scales, and some few of lime, which is of uniform compactness after leaving the surface four or five feet, and requires to be dug up with a mattock. This bed of clay uniformly rests upon beach sand or gravel; it varies in thickness from one to sixty feet; such is the character of the greatest portion of prairie land. This clay land being almost impervious to water, requires deep plowing and surface draining, and will then grow wheat with *the least labor or cost of any other land in the world.*

Of course the same description of land will produce all the other

small grains and grasses (excepting a few that flourish best in sand,) in untold quantities.

Indian corn upon this variety of soil is only a medium crop. But roots of every description usually cultivated for feed in this latitude, and particularly Irish potatoes, (what an Irish bull to call them so,) grow with great luxuriance and richness.

The natural grass of the prairie *makes the best beef ever eaten*, and remarkably fine butter and cheese; it is also good for hay. There is no description of land upon which sheep do better. The outlet for the superabundant productions that the immense tracts of prairie in this region are capable of producing, is through the northern lakes and New-York canals, and down the St. Lawrence, &c.

"The present condition of agriculture" in this region, is such as you might expect in a country not a dozen years of age, as it regards the works of civilized life, when you bear in mind that all infants must "creep before they walk"—and that but a small portion of the first settlers in any new country *ever read.*

The great object, apparently, of the great portion of the cultivators, is to cultivate—no not cultivate—but to plant the greatest quantity of land with the greatest possible amount, not of labor and attention, but of the careless, slovenly, skinning system; raising grain to waste and straw to burn; moving barns to get away from the manure; sowing wheat in November, to prove how easy it will die in March; sowing, and consequently reaping, wheat and chess in equal quantities, just to see how easily it can be separated in a good winnowing mill; keeping cattle in winter for the purpose of getting hides to tan in the spring.

But understand me, this is not the universal system, for "the sprit of improvement" is rapidly developing. Improvments in stock, tools and husbandry begin to be seen; farmers begin to think and read, and educate their children to be proud of, and able to maintain the dignity of their calling.

Now, sir, having told you something of the "condition and prominent features" of this region, need I say a word as to "the prospects of agriculture" upon the great, rich prairies of the West?

It appears to me that every discerning reader will discern that the prospects of agriculture are almost incomprehensible. Who can imagine the amount of the productions that the thousands of uncultivated acres will bring forth, when all are brought under the dominion of the husbandman who shall cultivate the land with scientific skill?

You, in the Empire State, should prepare for the coming events, the shadows of which you may now see dimly. If you intend to compete with the prairie farmer, who cultivates land of surpassing fertility at a cost of only a few shillings an acre for the purchase, you must break down your rail-roads and fill up your canals, or else we can deliver wheat at your own doors for 50 cents a bushel.

I will not attempt to say what, but I will ask you, what we can afford to raise wool for in a country where the summer pasturage

costs nothing, and in a climate where the sheep will winter nine-tenths of the time upon rye and blue grass pasture.

What we can afford to raise beef for, you can easily "cypher up on the slate," when I tell you that I can buy calves at $1.50 each in the fall, and I can hire them wintered by contract for four years, at $1.50 each per year, making four year old steers cost $7.50 each, and as fat as grass can make them.

I might go on with details; but I do not think it necessary. I think I have said enough to oocupy all the space that one individual should occupy in the pages of your Transactions.

AGRICULTURE OF MARYLAND.

ITS CONDITION, PROSPECTS, AND PROMINENT FEATURES.

BY GIDEON B. SMITH, BALTIMORE.

THE present condition of agriculture in Maryland, compared with that of states north of "Mason & Dixon's line," is rather below than above the meridian line. The crops are generally inferior in quantity to those of the northern states. There are exceptions, it is true, but they are mere exceptions. The cause of this, is generally, if not universally, attributable to the soil and climate, the former being deficient in constitutional stamina, and the latter liable to all the evils of both northern and southern climates, without any of the advantages of either. A farmer or a gardener, who lives by his trade in Maryland, earns richly all he gets. The soil is generally thin and easily exhausted; and hence a severe winter is very likely to destroy all that a dry and parching summer may have left unburnt, and vice versa. This state of things, together with the habit of *routine* fixed in the constitutions as it were, of our agriculturists generally, has fixed the standard of our agriculture at a grade below mediocrity. It is believed that the average yield of corn per acre, will not exceed twenty bushels, and that of wheat not twelve; and that the average profits of agriculture in the state will not exceed three per cent on the capital invested. So much for the present condition of the agriculture of Maryland. Its prospects are quite another thing. Improvements are rife in the land. The application of lime for the improvement of the constitution of the soil, is working wonders. Large sections have already been rescued from the blight caused by emigration to the west, by this powerful renovator. It operates as effectually as could a writ of "depart not," from our courts of law. Although it does not seem to act as a manure, (nor could this be expected,) it enables the soil to accumulate nutrition from vegetable growth and atmospheric gases. Wherever it has been used judiciously, the most beneficial effects have resulted, and it may be fairly estimated that the average of crops have been doubled by it. So universal has been

the improvement caused by its application, and so apparent its effects, that in every neighborhood where one individual has made the experiment, others have followed the example in quick succession, until liming has become a sort of epidemic monomania, if it be proper to apply such an appellation to so beneficent a condition of the human mind. Some five years ago, our State Geologist passed through a section of Carroll county, and by his persuasions and reasoning induced a few persons to apply lime to their naturally sterile fields. The effect was so marked in the production of crops, that in the course of the succeeding two or three years every farmer that could possibly raise the means had erected his lime kiln, and was busily employed in hauling lime stone during those times when the force could be spared from the immediate labors of the field. The consequence of this state of things may be summed up thus: All idea of emigrating to the west, which was the constant theme of most persons previously, has been abandoned, and all are now contented with their ancient homes; the lands that have been limed are enhanced in value at least fifty per cent, and those that have not received a liming have also been increased in value by the development of their capability of improvement in this way. Lime has also not only improved the land to which it has been applied, but all other arable lands, by diminishing the number of farms offered for sale by those who would have emigrated under other circumstances. No one now, in that section of our state, thinks of selling out and going to the west.

Lime seems to be beneficial to all soils that have been worn out, or that are naturally thin and poor. For a considerable period it was supposed that soils in which beds of limestone were found did not require and would not be benefited by the application of lime; but this has been found to be erroneous, as those very soils are found to be as decidedly improved by it as any others.

Now, although lime is not to be expected to do much more for a soil than to fit it for the reception of the nutritious principles necessary for the production of the various crops where the land is absolutely sterile, and to develop these nutritious principles in those that already contain them in a dormant state, we may fairly conclude that the prospects of Maryland agriculture have been very flatteringly improved by it, and that our state will speedily assume a station among her sisters of entire equality in agricultural affairs.

The prominent features of Maryland agriculture are those of all the northern states. They may be divided into several classes, but I do not deem this necessary. The *most* prominent feature is clearly visible to any traveller, and every correct thinking agriculturlist: It is the BROAD-ACRE CULTURE—the cultivation of too much land—the spreading of available forces over so large a surface as to weaken, if not destroy, its efficiency. Our farms are all too large for the force that works them, and our crops are therefore small, and our soils deteriorating. But the lights that have suggested other improvements, are beginning to illuminate this portion also, and much improvement is expected from it. The present passion for *broad-acres* in cultivation, will speedily be absorbed by that for heavy and certain crops;

then our farms will be reduced and our products increased. Farmers who took pride in boasting that they had a thousand acres in wheat, will soon be heard to claim credit for their well tilled and heavy yielding 50 or 100 acres. This system of superficial culture, has heretofore had the effect of "*wearing out*" immense quantities of land. No one thought of manuring such large tracts, and although a judicious system of rotation of crops has been generally adopted within the present century, even that has not been able to save the land. All now begin to see the necessity of reducing the surface of their arable land to the capacity of their force, instead of expanding their stinted force to the extent of their widely spread lands.

Shallow plowing is another prominent feature in Maryland agriculture, which is of more difficult eradication than any other of our errors. This simply looking into *or at* the surface of things, will no more do in agriculture than in other pursuits, and I am happy to say that the lights of the age are rapidly illuminating the subject of deep furrows here as well as elsewhere.

It need scarcely be stated in this paper, that our staple agricultural products are wheat, corn and tobacco. Those of less note are the same as those of all the northern and middle states. Although the average yield of our soil is not as great in wheat and corn as that of some other states, and although our climate renders a fair yield more precarious, yet both these grains are of a superior quality in nutritious principles. There is no wheat in the world that can compare with our Maryland white wheat, in its proportions of gluten and starch, the former predominating to so large an extent, that a barrel of flour made from it will yield some ten per cent more bread than a barrel of Genesee flour will. This is owing to the chemical combination of a larger quantity of water caused by the large proportion of gluten. Most of our red wheats are possessed of the same valuable property, and a knowledge of this fact is availed of by the bakers in all parts of the country. It is believed that if the errors above named could be eradicated, and the improvements adopted generally, the evils of our climate would be much less, if at all, felt in the failure of crops. We have a few instances of the unfailing success of those who cultivate closely and highly. The writer of this paper is acquainted with one farmer at least, who never suffers a failure in any crop, wheat, corn, or rye, and his success is believed to be attributable exclusively to his thorough cultivation and free application of manures.

ON BEES.

BY JOHN M. WEEKS, SALISBURY, VT.

In relation to your inquiries about bees, I am in some doubt what course of treatment on the subject will be most interesting, and best calculated to be useful to the readers of your valuable report. To

give an elaborate and full treatise on the nature, instincts and habits of the honey bee in this case, cannot be expected, on account of its length and labor, and any essay short of this, will appear imperfect. Nevertheless, if I can be the humble instrument of doing any good in the advancement of the apiary, a portion of my time and strength will be devoted to its objects with pleasure.

The wonderful economy of the honey bees, early attracted the attention of mankind; their history cannot be traced to its origin, neither is the precise time of the commencement of their cultivation known; many of their habits were known to the ancients, but their knowledge was combined with many fanciful and superstitious notions, which have been handed down by our forefathers, even to the present time. Modern writers have contributed much to our stock of knowledge on this subject, and it is believed that the superstitions concerning them gradually subside, as their owners become more acquainted with their true nature and interests.

If I am not mistaken, in the year 1830, one thousand eight hundred and twenty-three writers on bees, had been enumerated; since which time, it is believed that more than fifty writers may be added to the list. More has been done for the apiary in the United States since 1828, than had been previously done since the settlement of New-England. James Thacher, M. D., whose seat is on or near the forefather's rock, applied the mighty lever in such a manner, about the year 1829, that the whole apiarian community through the country felt his wake. But after all that Thacher and other modern naturalists have done in adding to our stock of information on this subject, many things are now assumed without sufficient proof by observation, and the great mass of persons who keep bees, still adhere to some superstitious notions taught by ancient writers and traditions of our forefathers. It is the delicious luxury, the comforts of life, that the honey bee produces, that has rendered this tribe of insects the peculiar care of man from the early ages of the world; not because the honey bee excites our admiration more than some other tribes of insects; for instance, the hornet or ant; but the honey bee contributes to our wants and necessities, both food and medicine. It has long been a settled fact, among well informed apiarians, that there are three classes or sorts of bees in a family, swarm, colony, hive, skip, &c. all meaning a community of bees that cluster and lodge together, to wit: a *queen*, drones and workers; in other words, these classes may, perhaps, with greater propriety, be called one female, males and imperfect females or neuters. When these classes are well known to the bee manager, the next thing to be understood by him is the peculiar office of each; these offices are distinguished with more difficulty than the classes or sorts, on account of their labors being performed principally in the hive, by the sense of touch, and in darkness; nevertheless experiments have proved beyond the shadow of a doubt, the principal offices and duties of each class of bees. When the bee manager understands the nature of the bees, thus far he is able to enter upon his duties in an intelligible manner, and feel sure of success. It is indeed true that there are yet a great many persons who

keep bees, and have kept them a great many years under what may be called the "*luck*" system, and express it as their belief that no such personage as a queen exists among bees, and treat the whole subject as a hoax. But it is believed that the most skeptical would be convinced of his error, if he would visit me and my apiary, any time between the first and fifteenth of July in any year.

In treating upon this subject, I shall be as brief as I can be, and make myself understood by the readers of your reports, a majority of whom will require less illustrations in order to understand me, than the community generally who are not as well informed on this subject.

The female or queen is very unlike any other bee in the hive; she is usually about one and a quarter inches in length; her abdomen is very long, perfectly round, and is formed somewhat like the sugar loaf, or *cone*. Her wings are short in proportion to the length of her body; has the same number of folds or rings in her abdomen, that is found in the working bee; her proboscis is small and very short; her color is usually of a yellow shade, and is stately and majestic in her appearance; admirably fitted in the form of her body to perform the duties of her office, which nature has assigned her, which is principally if not entirely, that of laying eggs to increase the population of the hive. This she does by entering the cell backwards, which is clear from honey or bread, and leaves the egg at the further end of the cell; the end of the egg is attached to the end of the cell near its center, by a gluey substance or gell, which is a natural accompaniment from the mother with the egg; the other end of the egg is found resting upon the floor of the cell. Thus the queen, by traversing the hive in all its parts, seeking out cells that are cleaned by the working bees, either for storing honey or raising the young, her presence as well as existence is known by the whole family, and each individual in the whole community is prompted to labor in the most industrious and energetic manner, in the respective offices which are assigned them, (not by the queen,) but by the eternal and unerring laws of instinct.

The government of a hive of bees is not one of force, but one of mutual benefit, as a republican government should be. The instincts of the different orders of bees are so made to harmonize, that while each seeks his own good and pleasure, he promotes that of others. The queen is as much the creature of necessity, as any other individual in the community. I have illustrated most of the foregoing sentiments by a variety of experiments, some of which were ocular and irrefutable; one, to a single point only, I will here relate.

On the 6th day of July, 1838, I took the queen from a first swarm out of the same hive that season, and inserted a common pin through her chest, which killed her. I then confined the queen with the pin in the center of a very fine but strong string, about eighteen inches in length, the ends of which I fastened to the two opposite corners of the hive near the top, by means of little nails, in such a manner that her lifeless majesty was suspended on one side of the hive

against the glass. I then let in the swarm and confined the bees in the hive until they had found their sovereign and clustered around her; this done, I withdrew the gate from the entrance of the hive and gave the bees liberty to work.

This experiment clearly shows that there is no arbitrary government in a hive of bees, nor domineering power in the queen. Notwithstanding their sovereign was dead, yet the bees commenced making comb immediately, and continued their labors with perfect regularity, as long as she remained in the hive; the queen being attached to the string in its center and the two ends of the string being confined at the top of the hive, a dozen inches or more apart, two legs of a perfect right angle was formed, with her highness at the junction of its two legs; at the same time, the common working bees were constantly climbing the string, which kept the lifeless carcass of their venerated sovereign in constant motion. During the whole time of the process, in this part of the experiment, both day and night, there were about a dozen working bees which stood around her majesty, with their heads directly towards her, seemingly in amazement or holding a solemn council; at the same time there were other working bees manifesting unflinching determination to cut off and loosen the string with their teeth, and liberate their mistress from her unnatural confinement. Now, whether it was the intention of the bees to cut off the string to liberate their sovereign, and see whether she was living, or to remove the string which was a nuisance, or drag the dead queen out of the hive, is more than I could determine. But it is certain the bees did by their perseverance, succeed in loosening the string, and the whole string, pin and lifeless carcass of their emaciated and dried up sovereign was found altogether dragged out at the mouth of the hive on the 25th day of July, twenty days after hiving them and the bees stopped work.

Another fact is here demonstrated, which I think ought to settle the question forever, in relation to the queen's being the mother of all the bees. In this case, no eggs were laid in the cells, no young broods were raised; yet there were drones a plenty as well as workers in the hive, during the whole time of twenty days, and also during their recess from labor, after the dead queen was dragged out of the hive until the season for the general massacre of the drones arrived. I had five full observing glass hives at the same time in full operation, varying in hiving swarms in them only two or three days. One hived July 2d, had eggs laid the first night; eggs were seen in some of the cells, before they were to exceed the eighth of an inch deep, and chrysales were forming on the 10th day after hiving. In other hives chrysales were not observed until the 13th day. But another fact is demonstrated by this experiment, which is corroborated by other testimony in the case; it is this: no brood comb will ever be made in a hive of bees, unless they discover eggs in the cells. Bees usually make comb containing coarse cells in some sheets and fine ones in others, either of which are proper receptacles for storing honey or bread; but it does not appear that they ever make either exclusively

for raising young bees, unless they find eggs in the cells. Then, if the cells are too deep, the bees cut them down to their proper depth, which is about five-eighths or three-fourths of an inch for workers; if too shallow they build on and extend them to the same depth in new combs, and never alter them afterwards unless they are broken by accident, or otherwise injured; so with the coarse cells which are proper for raising drones and are always used for raising that class of bees, when empty of honey, eggs are laid in them and they are altered to an inch in depth. These cells are often changed after the escape of the young drones and used for storing honey. In this case coarse cells were made in the middle of the hive, which is very unusual, and the fine cells were made on the back side of the hive, near the place where their dead queen was suspended. This fact would seem to show, that the bees had designed their breeding cells where it would be most convenient for the queen to deposit her eggs; but when it is known, as it was in this case, that the cells were too deep, and filled with honey too, it shows clearly that the bees had no design other than to store honey.

The queen's cell is never made except when a young queen is wanted. Although in frequent instances there are several of them raised in a hive of bees in a season, yet but one queen is ever raised in a cell. They are usually attached to the side of the combs, by changing three workers' cells into one for a queen; they are made perfectly round, pointing downwards, and are always destroyed by the bees by being worked down to a mere knob, with a hole about the size of a gold bead, very soon after the young queen has made her escape from her cell. But this experiment illustrates another fact; it is this: The polen of flowers (or bee bread,) is used only for feeding the larvæ. (Other experiments have proved that perfect bees never eat any.) In order to satisfy myself on this point, I devised means to exhaust the air in the hive of a portion of its vitality, which caused the bees to descend upon the bottom board, leaving but few among the combs, which greatly facilitated a minute inspection of the whole interior of the hive: whereupon it was found that the combs were unusually loaded with bee bread, for want of larvæ to consume it. This conclusion was irresistible, for by examining other hives, for instance the one hived July 2d, where young bees were raised in abundance, no bread could be found deposited in any of the cells. Bees do not often collect more bread than is needed to feed the young, until the first cold chill in August, or until the drones are massacred, which shows in every case that breeding is stopped, or greatly impeded. The flowers in September usually yield a great abundance of pollen, and as the breeding of the bees at this time in the season is always upon the decline, more bread is stored at this time than at any other, very little if any of which is ever removed by the bees, which accounts for the abundant surplus of bread found in all old hives. And here it is proper to remark that the success of the apiary depends principally on the quantity and quality of farina or pollen, as well as honey, that is yielded by the blossoms during the spring and forepart of summer.

It is believed that the young bees (larvæ,) must have new pollen, direct from the fields, and honey from the sack of the nurse, in order to insure vigor and health to the young. It is a common observation that the apiary has been on the decline for two or three years, through most of the New-England and northern states. The season of 1842, has been more disastrous to the apiary than appears on record since the settlement of New-England; very few swarms have come forth; very few stocks have raised young bees in sufficient numbers to keep up the animal heat necessary to prevent their freezing in cold weather, and very few swarms have honey enough to sustain them through the coming winter. In short, the "naturalist" has been defeated on almost every point, and compelled to seek new channels to discover the cause of his failures. I discovered quite early in the season, that my stocks did not increase in numbers as usual; whereupon I examined many flowers with the aid of the microscope, during the season, and found very little farina or honey; sometimes none of either; occasionally both were abundant, but these turns were exceedingly short; at the close of each, the habits of the bees would change (as it seemed,) from the vigor of youth to extreme decrepid old age. Here is an inexplicable fact; crops of grain have been abundant all over the territory referred to. Has the effluvia that has been exhaled from the farina or pollen, in such small quantities, exerted the sexual influence, so as to produce such an abundant yield? This is a question for philosophers. But I must return to the experiment on the hive, which greatly aids in confirmation of the fact that the queen leads out the colony in swarming, but the bees lead after the swarm is out of the hive. I have seen her majesty playing upon the bottom board at the hive's mouth, running out and in a full quarter of an hour before she would take the wing; then swarming came off regular; but she is usually among the last that alight. In several instances I have had suspicions that the queen had not alighted with the swarm, and have looked her up, and placed her with her family before they had returned to the parent stock. The queen is inclined to conceal herself from human observation, extremely timid, and more jealous than any of the bees. In this experiment the queen was suspended on one side of the hive against the glass; the bees by accident clustered in a body on the opposite side of the hive; after some twenty or thirty minutes had elapsed, I discovered that the bees were disposed to leave the interior of the hive, and cluster upon its outside. On opening the door it was found that only two bees had found their sovereign. I immediately brushed all the bees into the hive, and confined them therein, with the expectation that when the bees found their mistress was not with them, nor any probability of her coming, they would grow restless and would run around the hive to find their way out, and would come across their sovereign. They did so, and in the course of an hour I found her whole colony clustered around her.

Now, as I had most scrupulously observed all the facts in the foregoing case for thirty days, and observed the inactivity and perfect idleness of the bees after their dead queen was extracted from the

hive, I had concluded to let the swarm perish in their own way. But, as I was looking into the hive through the glass, I observed a moth miller depositing her eggs among the combs, without the least resistance on the part of the bees. This was a new thought to me; that the bees must inevitably perish by the moth, that "monster in gaudy hue," was so repugnant to my feelings, that I determined at once to defeat their pernicious purposes by supplying the bees with a new queen, which would reinstate their industry and ambition. But the season had already advanced to August 5th, two or three weeks after the close of the swarming season, so that no young queens could be caught, and I had not taken the precaution to preserve any extra queens that season. Hence, in order to carry out my system to its full extent, a good hive of bees must be sacrificed. The hive selected was taken from the stand at noon-day; I inverted the hive, took out all the comb, honey and bees, (the bees went into the adjoining hives;) this done, I selected brood comb of workers only, containing eggs, larvæ and chrysalis, in all their stages; placed the comb carefully in a drawer, and inserted the same into the chamber of the hive, so that the bees could repair their loss by making a queen in their own way. They did so, and on the eighth day had a queen; and here it should be remarked, that the bees, on the third day after they were supplied with young broods, resumed all their natural habits, labored with seeming redoubled vigilance; obtained a complete victory of the moths; expelled every one of them from their tenement, and protected their hive as usual. On expelling the bees from the combs, on the 21st day of August, (queen eight days old,) eggs were found in some of the cells, and the bees changing them to brood comb as fast as eggs were discovered.

This experiment shows conclusively that bees have the power to convert the grubs of workers to queens, as in this case. The entire and complete overthrow of the swarm was predicted. But a supply of larvæ has enabled them to create for themselves a young and fruitful queen, which was the means of their replenishing their stock, and has continued in existence for years, a fine, healthy and vigorous hive.

The peculiar instinct of the bees, as manifested by them in changing the nature of grubs of workers to perfect females or queens, to fill vacancies occasioned by the departure of the old queen with the swarm, and other casual losses or vacated cases, is the foundation of the whole bee economy.

Whether the grub or larvæ of the drone is capable of being changed to a queen, is a matter yet to be proved by experiment, which has never been done to my knowledge. It is believed that all eggs when laid by the queen, are of one class or sex, for a whole litter of eggs are frequently deposited in one kind of cells, and all hatch out workers or drones, according to the size of the cells where they are raised. It is found, moreover, that the queen, in some instances, deposites eggs promiscuously, some in coarse cells and others in fine ones; and the former invariably hatch out drones, and the latter always

come out workers, as the instincts of the bees are directed by the size of the cell to nurse as nature requires.

Now, as the queen becomes perfect and usually hatches in seven or eight days after the larvæ is removed from the workers to the queen's cell, and that too several days sooner than her sister's larvæ that remain in their cells and become workers, I am inclined to believe that all the eggs are naturally females in their original state, and the larvæ that is removed for a queen is nursed on a more pungent food than others, and facilitates a more perfect development of the female organs in the queen, and hastens her growth to a perfect winged insect, even several days earlier than the drones can be, which hatch three or four days earlier than the workers.

The extreme animosity which subsists betwixt females of this tribe of insects is so great, that but one queen can live in a hive any great length of time, before a battle must be fought betwixt them, and a victory won so as to exclude all competition to royalty. It would seem that the laws of nature in this respect might prove inefficient, and both sovereigns fall in the conflict, which would overthrow a whole community. But the unerring law of nature has its fixed principles, and affords perfect protection and security to one of them. I have often witnessed this wonderful display of nature's instinctive laws, by placing two queens in a glass cylinder, so that I could observe every act of hostility, and in all cases the conflict is marked with the same features, and ends in like results. Although the struggle is much longer in its duration with different queens, yet but one weapon is ever used, and but one method is ever adopted in wielding it. I have known hostilities to commence instantly, when introduced to each other; and again with others I have thought I could discover a kind of reluctance, like two men who would be glad to avoid the duel if their honor would not suffer, and remain some time looking at each other in a sort of reflection before the deadly conflict. I have known them to make an assault upon each other, and loose their hold. But when the two conflicting queens have made their hold firm and strong, this hold is never broken until relieved by death. The motions are all "instanter," quick as sight, except the struggle for victory. The queens, during the conflict, are hugged, breast to breast, facing each other, with their legs and arms around upon the back of each, like two boys wrestling at the back hug, in such a manner as to bring their bodies in close contact as possible, one lying on her right side and the other on her left. Now the reader will see that the abdomen of each are close to and fronting each other. Now comes the struggle which is tremendous; they have not the power to curve their abdomen back, nor sideways very much, for it would only give her competitor the advantage should they do either if they could. Hence the queen, possessing superior strength or agility, or perhaps both, curves her body, and enters the fatal sting into the lower region of the chest of her antagonist, which kills her in an instant, and the two bees are apart the next. The least motion is not often seen in the conquered queen, except a slight trembling in her limbs. In trying these experiments, I have known one

queen to conquer three competitors, one at a time, and at last suffer herself to be beaten, (*not killed*,) by a common working bee.

The drone is no doubt the male bee, notwithstanding the sexual union has never been witnessed by any man; nevertheless so many experiments have been tried, and observations made, that but little doubt can be entertained of its truth. Some writers have expressed it as their opinion that the sexual intercourse takes place high in the air. I think this is the case, for I have seen an attempt at copulation by the drone with the queen, on their return from an excursion in the air, before she could enter the hive; moreover, other insects of the fly tribe do copulate in the air, as I have repeatedly witnessed. Another reason why I think the drone is the male, is, they are not all massacred; I smothered four swarms in the middle of winter, to ascertain this fact, whereupon it was found that one hive had three drones in it; some had a less number, and one had none. But this is easily accounted for, when it is known that they are their own masters after the season for the general massacre arrives, and are known to take up their residence in any hive that will receive them, and again take their departure at pleasure, and make any hive their home. The drone without doubt has other offices and duties to perform, still veiled in mystery, which I hope by a course of observations to discover. Now, dear sir, as I have given an outline history of some of the leading instincts and habits of the female, or queen, and also of the male, or drone, the next thing is to illustrate some of the leading instincts and habits of the common bees, or workers, in connection with the whole family, as they are found connected with the apiary. Previous to entering upon this part of the subject, however, it may be proper to remark, that "many of the writers on bees of late," are not experienced practical apiarians, and are very justly entitled to the appellation given them by a late reviewer, who calls them "parlor writers." These writers, as it seems to me, (and I have no doubt it is so,) get together a few ancient authors, some old pamphlets and newspapers, then get into the great chair and set their wits to work, and exhaust their ingenuity in producing something that will best please their fancy, conduce to their interest or popularity; then they are thrown before the public as a guide to the apiarian community. "It ought not to be so."

As the condition and perfection of the brood combs and young broods in a hive of bees determine its success and profit to its owner, it is proper here to consider some of the habits as well as instincts of the bees. First, the bees should not be compelled to occupy more space than they are able to warm by their animal heat, to that degree which will cause their regular secretions of wax, without any extraordinary effort on the part of the bees. This cannot be done by a small swarm in a large hive, for the bees are compelled to exclude the cold air from their bodies in order to secrete wax, as well as to weld it on to enlarge and extend the combs. Wax is not made by the bees, but is of natural growth under peculiar circumstances, when needed by the bees for use. Honey is converted into wax by being retained in the sack of the working bee, so that when wax is need-

ed the bees cluster around each other so firmly that the animal heat enables nature to perform her perfect work; and the wax exudes through the pores, and is found on the surface of the bee's body in little flakes; from thence it is taken by the bees, and in the same degree of heat is welded on to enlarge the combs. In trying some experiments directed to this point, a good many years since, I found that bees were unable to retain honey in their stomachs or sacks only until the sixth day. In this case, I kept the hive so cold, that the bees were unable to secrete wax to any advantage, and their storage in the hive was insufficient, even for what the bees had on hand, it being a new swarm, and such always leave the old stock with abundance of food to last their journey, and until they can lay the foundations of new combs: but what surprised me most in this case was, on the sixth day (from swarming,) the honey became chrystalized the instant the atmosphere struck it, and fell down upon the bottom board like little shot, as it was ejected from the stomachs of the bees. Hives made perfectly tight so as to exclude all air, except a bare sufficiency for the bees to work, will be a partial remedy for the evils of placing small swarms in large hives; but it is found by experience that doubling swarms is a far better practice. All the hives of an apiary should be made on a perfect system, so as to render all the appendages, draws or boxes, bottom boards, &c. so near alike as to fit any place or hive; this renders the management of bees very easy, and prevents a thousand perplexities and mistakes. I have constructed ten classes of hives, varying in size and shape, and will admit of more than a hundred variations; the appendages of one class may be applied to any or all the classes of the same denomination, which are only two, *swarmer* and *non-swarmer*, varying in size from half a bushel to three bushels; but I shall urge none of them upon the public in this place. I shall show only some of the principles and reasons, in addition to what I have already stated, for adopting a system of my own; nevertheless, if any one wishes to adopt my system of managing bees, I will gladly afford him all the assistance in my power. And here it is proper to remark that I never read a single ancient author on bees, nor modern author, understandingly, until after I had tried most of the experiments alluded to in the foregoing dissertation, and what may follow; and all the authors I have read were after I had adopted my present system.

Swarms of bees, when they first leave the parent stock, vary in size, and are found to weigh from two pounds to eleven, and sometimes twelve pounds. When a swarm weighs only four or five pounds, I use one section of the subtended square hive, which holds a half a bushel, class fourth; or one section of the subtended hive, (*round*) [straw;] class sixth; or one section of the subtended (*round*) (*wood.*) class seventh; otherwise double with another swarm and hive them in this or any of the other classes that are of the right dimensions. It is very easy to add sections as the bees increase in numbers and stores; and also to take away sections when the bees have a surplus of honey on hand that can be spared. A swarm of bees that does not weigh more than seven or eight pounds, should not be allowed

more than one bushel of space to begin with; when the bees have pretty well filled this space, they may be admitted into collaterals, or into the chamber; but if a swarm weighs from eight to eleven or twelve pounds, they must be admitted to one or more of the collaterals or chambers; but this will depend very much on the state of the weather; and the exact state of a large swarm of bees can always be known by the thermometer in the course of five or six minutes, when placed in its appropriate chamber in the collateral box. If the thermometer falls below fifty degrees, there is certainly great danger of a chill among the young broods. If this happens, the whole stock of bees soon becomes worthless. If the chrysalis are so chilled in their cells as to perish there, the bees have not the instinct to know this fact, until it is too late for them to exercise any power over them, to remedy the fatal consequences of having their breeding cells filled up with dead, putrified and rotten carcases of a host of young which had met with a premature death; dead larvæ never produce any deleterious effects upon a hive of bees, other than the loss of their numbers; as the bees discover their death, they are speedily removed; but not so with the chrysalis; the bees feed the larvæ or grubs as soon as they are hatched from the eggs laid by the queen, until they have obtained their full size, and refuse to accept any more pollen, water, or food from the hand of their nurses. Then they are sealed up to wind themselves in a silken case to pass a season of repose, and transform to the perfect fly; during which time the common bees, and drones too, brood over them to keep them warm and guard them from their enemies, (unless driven from their post by the chill, to keep themselves warm near the center of the hive;) but as the bees are unable to count time, or to know the precise day that the lives of the chrysalis were destroyed by a chill, or the time that nature should have performed her perfect work, before the bees are aware of the fact that their labor is in vain and worse than in vain; for in this case, the breeding department is not only deranged by its useless cells, but the stench of these putrified young broods renders the whole hive obnoxious to its inmates; for the bees have not the power to remove the nuisance, nor the *will* to expose their tenement or companions to any more of the deadly effluvia of their diseased sisters, by uncovering their premature graves. I have known many swarms to dwindle away and perish under these circumstances. The cause is, too much cold air in the hive in the spring and summer months. The remedy is, *prune* out these diseased *combs* in season. The preventive is to keep the hive tight, and admit as little cold air as possible in chilly turns of weather; but there is another side to be shown in the principle of ventilation. It is often urged that the instinct of bees are the most perfect guide to their master in the selection of hives and managing them. Some ancient writer, Virgil, if I am not mistaken, says bees have been known to accept of the "stomach of a slain heifer as a residence," (*may be so.*) Others contend that bees prefer a hollow og or a hole in the rocks; but this by no means proves that bee will do better in either, than in good well made hives; for in es mating the quantity of honey taken from sixteen

trees in 1837, it was found the average was seven pounds to each tree; at that time, I had thirteen apiaries in the vicinity all around this tract of woodland where all these bee trees were found; and on weighing all the hives, it was found they averaged forty pounds. This shows conclusively that bees do best in hives. Another fact occurred in the summer of 1840. One of my neighbors, in passing through a large tract of timber land, found a swarm of bees clustered on the limb of a tree low down; he hived them in one of my classes of hives, and let it stand in the woods on the ground near its parent stock, a tree close by it, that it probably came from; and on weighing the hive in the fall, it contained eighty pounds of honey, and that in the tree not twenty. It is supposed by many that bees are naturally inclined to leave the apiary and flee to the woods when they swarm; but it will be difficult for me to believe this, in case they are judiciously managed. Bees are as easily domesticated as cattle, sheep, hogs, and other animals that were made for the use and comfort of the human family, and will not often flee to the woods, unless they are neglected by their master or driven away by bad management. I never lost a swarm in my life by flight to the woods, that I hived myself, and never had but one swarm attempt to leave, and this went direct from the old stock without alighting. These bees I stopped, and compelled them to alight within seventy rods of their starting place. Moreover, repeated experiments have rendered it conclusive that when the bee manager prepares a goodly number of hives ready to receive swarms, and sets them in their respective places, many swarms will go into them. In one large establishment, I have known at least seven swarms to sally out of their parent hive, and go directly into empty hives thus prepared, in the course of the last three seasons, without alighting, and forming in a cluster previous to entering the new tenement; and it is believed a majority of the swarms would take the hives in preference to going to the woods, if they were fitted and ready. But as a good many might leave for the woods, it is better to hive them when they alight, than run the risk of their going off. It is said that bees are the best judges in regard to ventilating their tenement; true, they are better skilled in this art than most of their masters. By directing some experiments to this point, I found when the thermometer ranged from eighty-five to ninety-two degrees in the shade in July, when honey was abundant in the flowers, the bees had left the drawers and were clustering on the outside of the hive in idleness, and in large bunches. I thought it was a pity that the bees should lose a moment at this important time of their harvest; and by turning the adjustable cap on the ventilator in the center of the canal bottom board, a little air was admitted freely; and in the course of an hour or two, all the bees had retired into the interior of the hive, and were at work in the boxes as usual. Ventilating hives as it should be done, is the most difficult and intricate part of the bee management; but my limits will not admit of a full discussion here of this point.

Bees have many habits and instincts yet to be considered, but my limits will not allow me to illustrate any, except some of the most im-

portant ones. Bees are pirates and robbers of the first stamp. Nevertheless, in all their contentions for the mastery that I have discovered, hostilities cease as soon as the conquerors have gained the victory; and it is not uncommon for the conquered to turn in with the conquerors and assist in carrying off the spoil, and all leave in a body and go home in company with the conquerors. Bees are irritable when insulted, and manifest it in the most virulent manner by using their sting as a weapon of warfare as well as defence. Notwithstanding the bee always dies when it has stung so as to lose its sting, their passions of anger are so strong that they frequently plunge into danger without the least apparent forethought or remorse; bees will sting some persons with the greatest fury, when others may remain in their presence and even handle them with impunity, without exciting the least hostile feeling on the part of the bees. The cause of this fact, no doubt is this: The exhalations of some persons send forth an effluvia that is very offensive to the bees. I cannot say it is a constitutional defect, yet it may be; for I once knew a man that was a great lover of the apiary, and would handle his bees with the most friendly feelings, not only on his part, but the bees also, for they would never sting him; but a fit of sickness, to his great mortification, had unfitted him so far for the apiary, that he was unable to go near his bees on account of their hostility, until the effect of the medicine he had taken was worn off, and his former constitution and habits were completely reinstated.

Bees exhale more, perhaps, than any other animated being in proportion to their size and weight. A good swarm of bees, when their stomachs are empty of honey, will weigh about two pounds; these bees will consume sixteen or eighteen pounds of honey during cold weather, without having a single evacuation of the bowels—eight or ten times the weight of their own bodies. Now this is accounted for only by their exhalations; but a small proportion of the honey they eat, forms excrement in their bowels; when the honey is digested in the stomachs of the bees, it passes off through the pores of their bodies, and forms vapor, usually called *bees' breath;* this vapor soon becomes dense, like dew, and settles upon the combs and sides of the hive, runs down and discharges at the hive's bottom. Nevertheless, some hives are known to be so strongly populated, that the bees eat less, *of course* exhale less in proportion to their number; and the bees are able to keep up animal heat in the hive sufficient to consume the vapor, which keeps the honey warm and more nutritive, combs dry, and the bees from freezing. *Thinly populated hives only, should be doubled in the fall for wintering.*

But a small portion of the honey that is taken upon the human stomach, digests and passes off in the ordinary manner that other food does; it is diffused through the system more like brandy, goes into the blood, and passes off in urine. It is believed that even beeswax, (which is always made of honey,) principally passes the human system in the same way. I will illustrate this sentiment by a single occurrence which took place in this neighborhood. W. B. M. Esq., had a child that was excessively fond of beeswax. It was found one

evening that the beeswax was missing; as it was quite a large piece the whole family became exceedingly alarmed and anxious about the child. The next morning, the fears of the parents were all quieted by finding a goodly portion of the wax floating like tallow on the surface of the water the child had made during the night.

On looking over the foregoing manuscript, I observe some important habits and instincts of the bees have been inadvertantly omitted in their proper place, to wit: The nature and use of propolis or bee glue; the cause of some bees having no stings; the cause of swarming; the notices of swarming given by the queens in certain cases; the way and manner the common bees prevent swarming, when their instincts teach them that the season is too far advanced for the bees to form new colonies with safety; the way and manner the common bees smother their extra queens under certain circumstances; the fact that many of the drones, when the bees commence their general massacre, leave their hives, flee to the fields and perish, rather than be mangled to death by the cruel workers; and not a word about the moth. But, sir, it ought not to be expected that a fair outline of the history of the nature, habits, and instincts of bees can be given in a dissertation of ordinary length, where a volume is required to do the subject justice.

SUBSOILING—SUBSOIL PLOWS.

BY C. N. BEMENT, ALBANY.

HERETOFORE the farmers of this country have cultivated a soil enriched for ages by the yearly addition of a fresh stratum of mold. From the first existence of vegetation upon the dry land, decayed plants, leaves, &c. have continually furnished a supply of manure, which the winds and rains have liberally spread abroad. As the supply was annually greater than the consumption, the earth, unexhausted by its productions, increased in fertility. The thick layers of vegetable mold which covered the face of the earth, was a storehouse of food for plants, and this quality increased by the conversion of wood into ashes by clearing. It is not wonderful, then, that for some years newly cleared settlements should abound in produce and require little more labor than that of plowing and reaping; for during this period the provision is wasting which for centuries had been accumulating. But the time will come, and indeed has already come in many sections, where the soil has been exhausted, and is too weak of itself to make plants grow with their former luxuriance. The grand question now presents itself, "how shall this soil be renovated and brought back to its former richness and fertility?" My answer would be, by breaking the under crust, opening and stirring the subsoil, by which means it so alters and disposes the earth in which plants are rooted, that the radicals shoot more easily and more exten-

tensively through it, or in other words it becomes a better filterer for straining and applying nourishment to their inhaling or absorbing vessels.

It is a well established fact or axiom in agriculture, that the deeper the soil is, the more favorable will it be for the purposes of cultivation. To produce this desideratum, several plans have been adopted, either by thorough trenching with the spade, or by the use of the subsoil plow. Air and water are the chief instruments which nature makes use of to enrich the earth.

It is by close attention to passing events that any desired object can ever be obtained. As far as experiments have been made, we find the earth liberally affording its produce in tenfold quantity, and the land that now supports an hundred inhabitants, may give equal enjoyment to a thousand. But in this stage a well managed farm must be carried on with more labor, more expense and more exact skill. The most profitable system of culture is that which pays the greatest per cent on the money laid out in cultivation, while the land is yearly increasing in its productive powers, is a truth which no one will attempt to deny.

I have, for the last four or five years, had my attention directed, by reading in the agricultural journals, to the great benefits derived from subsoil plowing in England and Scotland, and have felt very anxious to obtain an implement for that purpose. For the last three or four years I have been making some experiments with merely an apology for a subsoil plow, as it only penetrated about five inches below the bottom of the furrow of the common plow; and the share was thin, flat, and only three inches wide at the broadest part; still, with this simple, and I might almost say, inefficient machine, I could see a very perceptible difference in the appearance of the crop, especially in a drouth. In 1841, I made an experiment in a field of corn, a part of which I subsoiled with my skeleton or apology for a subsoil plow, stirring the under soil only to the depth of five inches; in that part of the field where the under crust had been broken, the corn maintained a healthful, dark color, while that adjoining, which had not been stirred with the skeleton plow, turned yellow, leaves curled and looked sickly. In fact, the difference was so great that it was noticed by those passing, although some distance from the road. I also tried it for my carrots and beets, with the same decided effect. I have tried it on a stiff loam and on soil inclining to sand, with equal success. This I was not prepared for, as I supposed such soils would not be benefited by the operation; but on examination I found the subsoil, which had not been reached by the common plow, very compact and nearly as hard as a beaten track on the surface.

As for myself, and from my own experience, I entertain not a doubt of the utility of deep plowing; not, however, by turning up the under soil, but by following in the furrow made by the first plow, with a real subsoil plow, which if properly constructed, pulverises and stirs the earth from twelve to fourteen inches. Indian corn and all tap-rooted plants in such a mass of loosened earth, would not, I am confident, suffer much by an ordinary drouth. Like a sponge, it

would absorb a vast quantity of rain water, and become a reservoir to supply the wants of the plants. Nothing is more common in a dry summer, than the rolling of the leaves of corn; and that circumstance is often mentioned as an evidence of the severity of the drouth.

There is another advantage in subsoiling. If the season is wet, it has the effect of partially draining the land, and causes the water to settle and carry with it any vitriolic or other noxious matters.

I am not aware that subsoil plowing has as yet, in this country, received much attention; but from my own experience, and several experiments made by different persons in different sections, and with very indifferent implements, the results have been such that I am led to believe that it will prove of very great advantage on old soils that have been long under cultivation.

E. Phinney, Esq. a very spirited and successful farmer in Lexington, Mass., in a letter published in the New-England Farmer, in speaking of an experiment made with a substitute for a subsoil plow, in a field of carrots, says, "A part of my crop of carrots was sown upon the same land appropriated to that crop last year; no more manure was applied than in the previous year, and notwithstanding the very severe drouth which greatly injured most of our root crops, my crop on this piece of land was nearly double that of last year. There is no known cause to which I can attribute this great increase of the produce, but the use of my new constructed substitute for a subsoil plow. The soil was stirred to the depth of fourteen inches; by this means the roots of the carrots were enabled to strike deep, and thereby not only to find more nourishment, but to overcome in a great measure, the effects of a very pinching drouth."

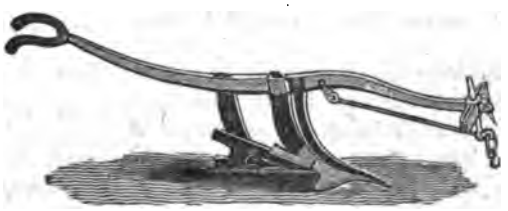
It is stated in the New-England Farmer, "that B. V. French, Esq. of Braintree, Mass. raised the past season, over 22 tons per acre of white carrots on ground not particularly well prepared for roots. He attributes this great crop principally to the use of the subsoil plow on the land the previous season."

The subsoil plow has been tried in Pennsylvania and Delaware, but I have not as yet seen any account of its effect on the crops. For deep rooted plants, no one, I think, will pretend to gainsay. Why do our gardens produce so much more to the acre than our fields? Is it not, in a great measure, owing to deep tillage and mixing the under with the upper soil?

Mr. Smith of Deanston, to whom is awarded the credit of first successfully introducing the subsoil plow, in a lecture delivered before the Royal Agricultural Society of England, in July last, says, "When I first began to cultivate my own farm, although I had put in the drains, I found they were not so efficacious as I at first expected; and I then began to think of stirring up the subsoil, which gave rise to the idea of a subsoil plow. I thought I must construct an instrument which would execute the work with the least possible power. I made my plow very strong, and of that form to which the least resistance would be opposed, at the same time taking care to have sufficient power fairly to stir up the soil."

"I will here explain the principle of the subsoil plow, because I have found that many persons, although seemingly acquainted with it, have not the proper notion of the principle on which it is based. The great principle is that there are many subsoils, which, though capable of being converted into a good soil, yet if brought up and mixed with the active soil, will so far deteriorate it as to make it for some time sterile. It therefore occurred to me that the great point would be to stir up the subsoil, still retaining the good soil on the surface. Stirring up the subsoil would, in the first place, very much facilitate the escape of the water into the drains; and secondly, in consequence of the passage of the water through the stirred up subsoil, and the attendant admission of air, it would be so acted upon as to be converted into good soil, while at the same time I was having all the advantages of working the active soil as before."

Having treated of the process and noticed some of the advantages derived from subsoil plowing, I will now endeavor to give a description of some of the implements made use of for that purpose, three of which are of European, and one of American manufacture. In proof of the estimation in which subsoiling is held in England, I would state that no less than eight subsoil plows were entered for competition and exhibition at the Fair of the Royal Agricultural Society, held in Bristol in July last.



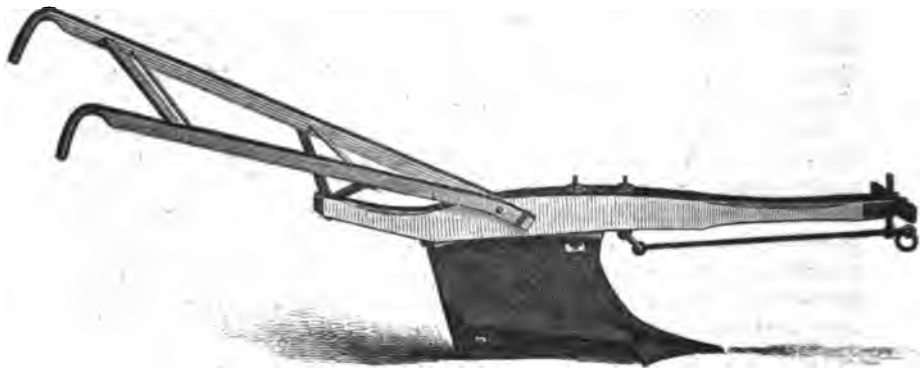
Smith's Subsoil Plow—Fig. 1.

The subsoil plow is not a new invention, but was in use in England more than fifty years ago, and recently brought into prominent notice by Mr. Smith of Deanston, Scotland. In Dickson's Report of Lancashire is the following notice of the "Miner or deep-stirring plow:"

"There is another tool of the plow kind, somewhat similar in construction, which was introduced into the country about the same period as the 'Trench plow.' It simply consists of a plow share firmly fixed to a strong beam by means of a strong sheath and handle, without any mold board. It is usually drawn by four or more horses, being made to follow in the furrow of the common plow, so as to penetrate into, loosen and stir up the under soil, without turning it up, to the depth of from eight to fourteen inches below the track in which that plow had gone."

The above figure represents one of Smith's subsoil plows, and the following description of it is taken from Mr. Morton's prize essay, published in the "Farmer's Magazine," (London) of July last. Mr. Morton says, "Smith's subsoil plow consists of the ordinary framework of a plow, without the moldboard, made strong enough to stand

the shocks and the strain to which an implement requiring the force of four or six horses to work it, must be subjected. The framework is of iron, and about 15 feet long. A sole-plate, on which a feather shaped or pointed sock slips, is attached to it by means of two uprights or curved coulter. The height of the plow, when held in a working position, from the sole-plate to the beam, is about 22 inches. It is thus enabled to go to a depth of 20 inches. From the furrow side of the sock a spur projects, over which the mass of subsoil cut by the coulter and share is raised and broken, and falls down again."



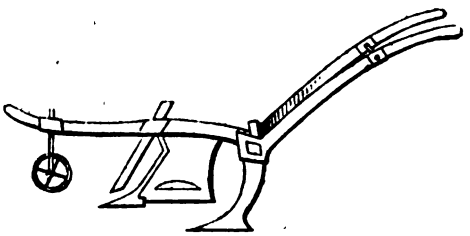
Ruggles, Nourse & Mason's Subsoil Plow.—Fig. 2.

Now the American subsoil plow made at Worcester, Mass. by Messrs. Ruggles, Nourse & Mason, differs from Smith's in several particulars. The handles and beam are made of wood, reduced in length, and in fact the whole implement is reduced in size, which makes it much lighter, and can be turned in the same space as the plow which precedes it. In place of the spur, as on Smith's, this has an inclined plane, which raises from the feather of the share, and extends back to the heel of the plow. It is about three inches wide, lies against the upright, and raises to the height of six inches behind. By means of a slat in the point of attachment, it can be raised or lowered at pleasure. With this inclined plane the soil is raised, pulverized and partially mixed, leaving it in a loose, friable state, without bringing it to the surface. By this simple contrivance the draft has been so much reduced that two common sized horses are amply sufficient to work it in a stiff loamy soil, from 8 to 10 inches below the bottom of the furrow of the plow that precedes it, but it must be free from roots and large stones. The greatest improvement, however, and especially at the present time, is the price at which they are offered, being less than one-fifth of the price of the imported article. One of Smith's was imported in 1840, by Messrs. Ellis & Bosson of Boston, at an expense of about $80. D. D. Campbell, Esq. of Schenectady, imported another about the same period, or soon after.

I have tried one of the Worcester subsoil plows, and can say I was much pleased with its performance, and more particularly with the ease in which the horses performed their work. Now, if the first

plow turns up a furrow six inches deep, and the subsoil plow penetrates and loosens the subsoil ten inches below the first plow, we have at least sixteen inches of loosened soil, which in the common method of plowing, and allowing that the plow lays the furrow two inches higher than the depth of the cut, we have then but eight inches of loose soil for the bed of the plant.

The expense of cultivation, by subsoil plowing, must be necessarily much increased by the present mode, as it requires an extra hand and team to go over the same ground, and at the same time of the first plow; and to diminish the expense of the operation of subsoil plowing, and to adapt them to the wants of the small farmers, several attempts have been made in England, to combine the two implements in one. The first of these, by Mr. Pusey, called the Charlbury Subsoil Plow, of which the following is a figure:



Charlbury Subsoil Plow—Fig. 3.

"It combines in one implement," says Mr. Morton, "both the plows used in the operation of subsoiling. It not only stirs the subsoil, but opens the furrow in which the subsoil plow works. It consists in the attachment of a strong tine, similar to those used in Biddle's Scarrifier, to the common plow, in a position in which it acts after the furrow slice has been turned."

"This implement," continues Mr. Morton, "doing all the work, requires, according to an experiment recorded there, less force to work it than the subsoil plow, (!) doing only one portion of the operation. It cannot, however, be so efficient in thoroughly stirring the subsoil as the original implement." The other attempt at diminishing the expense of subsoil plowing, is by Mr. Armstrong of Stirlingshire, for which he received premiums from the Stirlingshire Agricultural Society, and from the Highland Society.

The following is a description of it as given by Mr. Smith, at an agricultural meeting. It appears that the inventor has adapted the principle of Wilkie's turn-west plow to Smith's subsoil plow; and if I understand the principle of it, it is just what the American farmer is in need of, as one hand with one team can perform both operations.

"The general frame work is that of a subsoil plow rather under the medium size, and to it is attached a hinged mold-board, similar to the mold-board of Smith's hill-side or turn-west plow. By means of this arrangement, the plow can be used for removing the furrow preceding the operation of the subsoil plow, and when the furrow has been removed, the mold-board being moved upon its hinges, from its

working position, rests over the beam of the plow, whilst the instrument is used for subsoiling in the bottom of the furrow just removed. Thus the operation of removing the furrow and subsoiling, can be alternately performed with the same implement, by the same plowman, and the same team of horses, by a single movement of the mold-board, which is done in an instant by the hand of the plowman at each turning. The additional weight of the mold-board serves to keep down the plow whilst subsoiling in different grounds. The judges consider this implement well contrived, and as being an important boon to the small farmers, and as certain to give great facility to the extension amongst them of the admirable system of subsoil plowing."

ON SOILS AND THEIR MANAGEMENT.

BY DAVID THOMAS, AURORA.

GEOLOGISTS inform us that soils were chiefly derived from the wear and tear—the disintegration and decomposition of solid rocks. In some tracts of country, the soil is nearly identical with the rock that immediately underlays it, or partakes largely of its nature; but such occurrences are rare in this county, (Cayuga.) So extremely active was the deluge that swept over and rounded our highest hills, that many a square league of stony strata was entirely buried by materials that drifted from other parts of the country, and which have no resemblance to the rocks they cover.

Favorably for the southern parts of our county, that deluge came from the north, sweeping over a limestone region, and depositing in its course over our barren state, the rich collection it had made. And here let us stop to consider: if that flood had come in an opposite direction, bringing along the unproductive detritus of the mountains, instead of our fertile fields and flocks and herds, we might have witnessed nothing more inviting than scrub oak plains, and a few wandering deer.

Like other floods, however, its deposites were irregular, as its velocity was increased or retarded—as it whirled into eddies, or rushed onward in its course. Pure clay, indeed, can scarcely be found in this formation; but all the varieties of loam, whether clayey, sandy, or gravelly, occur; and some deep beds of both sand and gravel, are so pure as not to discolor the water into which they are thrown.

Such instances however are rare; and the grinding and mixing of so many substances by that deluge, have been eminently beneficial to our farms. No soil is fertile, says Humphrey Davy, "that contains as much as 19 parts out of 20, of any one material or constituent." On the contrary, soils that contain mixtures of many things, are generally very fertile,—provided that clay, lime and sand, form a large share of the mass. When you see therefore, old mortar, the sweepings of the smith shop, or leached ashes, thrown into the highway, you may

safely conclude that the owner is greatly in want of instruction. These are excellent manures, and permanent in their effects.

Perhaps some would ask, why are different things necessary to constitute a fertile soil? Allow me to answer in the language of Dr. Jackson's Geological Report on Rhode-Island: "Chemical science arranges all bodies as electro-positive, or electro-negative. The electro-positive are always the alkaline or basic substances, while the acids are always electro-negative when brought in contact with matters of the positive class. If a soil is wholly positive or negative in its nature, it fails to be fertile; and when one power greatly predominates over the other, it is not in its most favored condition. Silex is regarded as an acid, and alumina, lime, magnesia, iron, and the alkalies, are its opposites."

According to this view, the soil may be considered as a vast galvanic battery. "It is rendered nearly certain," says an eminent writer, "that manures act by the salts they contain, acting when brought in contact with the earths in producing galvanic currents," and of course stimulating the plants in their growth. On this subject, however, I give no opinion of my own, because I can comprehend much more clearly the neutralizing effects of acids and alkalies, and the absorbent powers of the different materials. This view may regulate our practice quite as well as the former; and indeed there seems to be nothing discordant between them.

It is not many years since the existence of acid soils was denied or overlooked. The talented editor of the Farmer's Register in Virginia, was the first to point out the error or oversight; and the subject is now better understood. He furnished no evidence indeed of the presence of uncombined acid; but the circumstantial evidence was very strong and pointed; and in my judgment he fairly made out his case. Since the publication of his "Essay on Calcareous Manures," other writers of great respectability, have either adopted his views, or furnished additional and positive proofs of their correctness.

The question may occur, why is not an acid soil as fertile as any other? It is more fertile than any other for such plants as the Red Sorrel; but not for the plants which are the chief object of the farmer's culture. These generally require a neutral soil—that is, one in which lime, under some form or other, occurs in considerable quantity.

Although clay, according to Dr. Jackson's classification, is arranged as an alkaline earth, yet as such, it is so feeble that when united *silica* or sand alone, the mass becomes acid, and unfited for our usual crops. On such lands, Indian corn assumes a yellow sickly aspect, even when it is not injured by stagnant water. And what is the cure? Apply lime enough, and then, says an accurate observer, "the young corn takes immediately a deep, healthy color, before there is any perceptible difference in size. The crop will produce from fifty to one hundred per cent more the first year, before its supply of food can have possibly been increased."* And why? Because the poison which has paralyzed it, was destroyed.

* Essay on Calcareous Manures.

It is well known that when magnesia occurs among quick-lime, it is often injurious to the land. Such a mixture is called *hot lime*, from its burning alkaline quality,—the magnesia not combining so speedily as lime does with carbonic acid, which would render it mild. Besides the lime, having a stronger attraction for that acid, will either be served first, or take it from the magnesia till it has got enough. I have seen spots of earth, where large heaps had been thrown down to slack, remain barren—as free from vegetation as this floor—for two or three years, although the ground had been carefully scraped over when the heap was removed.

Yet such is the stuff to which the southeastern part of Pennsylvania owes much of its fertility. Formerly when I lent a hand to that process, it was considered that 30 or 40 bushels to the acre were as much as the land could bear without injury. It was found, however, that rich land would bear more than poor land; and in process of time they discovered that 100 bushels to the acre might be safely and profitably applied to pastures or meadows. The lime was slacked in large heaps; and then from a cart or wagon on a calm day, it was scattered with a shovel evenly over the grass. It fell among the decaying leaves, which in warm weather yield carbonic acid, and it became mild without injuring the crop.

Some years ago, I published an account of this simple method, believing it superior to that of any other country; and you may judge of my surprise to see it stated in a work of high authority, bearing the date of 1840, that magnesian limestone is unfit for the purposes of agriculture.

Lime, however, possesses other properties besides that of neutralizing acids. One of the most remarkable, is the power to absorb putrescent manures; and to hold the fertilizing essence till it is wanted by the crop, through every vicissitude of the seasons, and through indefinite periods of time. There it is locked up; and nothing at common temperatures but the energy of a growing plant, can unlock it.*

Lime has therefore been styled the basis of all good husbandry. It stores up the manure that is not immediately wanted, for future use—a kind of *save all*. When the supplies from the barn yard are spread and plowed into a soil that is nearly destitute of lime, the growing crop catches a part of its virtue; but a very large part escapes, and very little will be left for the benefit of those that succeed. I had been used to such soils until I removed to my present farm; and was then agreeably surprised to see how much more durable were the effects of stable manure. My fields were limed by the deluge.

Unwholesome vapors and villanous smells are also absorbed by lime; and some places, once remarkable for insalubrity, have been changed in their character by liming or marling the fields around them. Nuisances are converted into mauures. A striking illustra-

* The following extract from *Liebig's Organic Chemistry*, is cited as a parallel case:
"An abnormal production of certain component parts of plants, presupposes a power and capability of assimilation, to which *the most powerful chemical action* cannot be compared. The best idea of it may be formed, by considering that *it surpasses the power of the strongest galvanic battery*, with which we are not able to separate the oxygen from carbonic acid." p. 184.

tion of this principle is contained in the following account from the Essay on Calcareous Manures.

The carcase of a cow, killed by accident late in the spring was laid on the ground, and covered by about twenty-five bushels of broken shells mixed with forty-five bushels of earth chiefly silicious. After the rains had settled the heap, it was only six inches thick over the highest part of the carcase. The process of putrefaction was so slow, that several weeks passed before it was over; nor was it ever so violent as to throw off any effluvia that the calcareous earth did not *intercept in its escape*, so that no offensive smell was ever perceived. In October, the whole heap was carried out and applied to one-sixth of an acre of wheat; and the effect produced, far exceeded that of the calcareous manure alone, which was applied at the same time on the surrounding land.

The same valuable work contains a caution to the farmer which may save him from a dangerous error. "He is not to suppose that calcareous earth can enrich a soil by direct means. It destroys the worst foe of productiveness, [acidity] and uses to the greatest advantage the fertilizing powers of other manures; but of itself it gives no fertility to soils, nor furnishes the least food to growing plants." In other words, it is the strong box for the treasure, but not the treasure itself.

Lime also possesses the property of making sandy soils closer and firmer, and clayey soils lighter. It is a mean between two extremes.

I was conversing several years ago, with a farmer from a sandstone district, who expressed some surprise that forty bushels of wheat could be raised to the acre. "I don't believe," said he, "that our land could be made rich enough to produce such a crop—it would lodge." I am entirely of the same opinion, unless lime be employed. Stable manure is too stimulating—the stem grows too rapidly—it is succulent and weak. Whether the lime by combining with silica assists in stiffening the stalk or not, we may be certain at least, that it yields nourishment as the plant needs it; and that every part will be healthy and properly developed.

Professor Emmons says in one of his Geological Reports, that the most fertile soil formed artificially, by the mixture of different earths, yielded on analysis, 37 per cent of carbonate of lime. As it is known, however, that lime in some soils, soon ceases to be a carbonate,* it is probable that the real quantity of lime was even greater than what was indicated by the analysis. I have seen soils of remarkable fertility, that naturally contained a very large proportion of lime; and there is no danger of having too much when it is properly applied.

In drouth, how are plants supplied with water? After a shower, the soil may be wet enough for a time; but when the sun and wind dry the surface, the moisture rises up from below by capillary attraction, as the melted tallow rises up through the wick of a candle to supply the deficiency above. It is from this circumstance that our crops over deep beds of sand, suffer less in dry weather than where

* Essay on Calcareous Manures.

the subsoil is hard and impermeable, showing the benefit of deep and thorough plowing. In either case, however, as the supply begins to fail, and the soil grows drier, its finer parts absorb moisture from the air; and the plants are constantly nourished by this invisible fountain.

But the different constituent parts of the soil, act with different degrees of energy.* Of the earths, the silicious is the weakest, and the aluminous the strongest, while lime holds an intermediate position. Not one of these however would do by itself. We want sand, because no soil consisting entirely of impalpable matters, is fertile;† and we want it to keep the soil loose, so that the air can enter its pores, and give up the water which it holds as vapor. Without such assistance, stiff clay or aluminous earth would absorb but little moisture from the atmosphere, because it cakes and shuts out the air. Lime is also a valuable auxiliary in rendering the soil more absorbent, independent of its other indispensable qualities.

But the soil, however it may be tempered and constituted, can never be absorbent in a high degree without culture. Some crops indeed require more of this quality than others. Thus Indian corn requires more than wheat; and wheat more than the grasses of the meadow. But vegetable and animal matters are more absorbent than the earths; and culture only can properly introduce them into the soil. Even when there, frequent stirring is necessary to keep the ground loose and the pores open, for the free admission of the air and the easy passage of the roots.

Our coats sometimes become spotted with mud. We apply the brush, but the bristles pass over without effecting its removal. What is the reason? The clay which was suspended in the water, forms a glaze or crust. It is just so with the interior of a soil which has laid long unstirred. The clay forms a crust round the inside of all the little cavities, preventing the free circulation of air, and the introduction of moist vapor. The fertilizing principles are excluded.

The celebrated TULL, observing the extraordinary effects of high culture, concluded that plants fed on mellow earth, and DUHAMEL adopted the same notion. Their philosophy was *coarse*, but their practice was *fine*. If we were to follow their example, making plenty of fine earth for the plants—not to *feed on*, but to *drink from*, our crops might be greatly increased. One of the chief errors of our husbandry is to cultivate too much land, because it is only half done. Half the quantity with double the work on it, and double crops would be found more profitable.

I have long believed, however, that no part of the system required reformation more than our management of manures. Manure has been called the wealth of the farmer. When it is taken out in the spring, it is commonly scattered over the ground in large lumps; the plow comes along and covers them or not, as the case may be. If covered, they intercept the ascent of the moisture from below, especially in dry seasons. If not covered, they lie wasting on the

* Davy's Agricultural Chemistry.

† "Sand gives little absorbent power."—*Agric. Chemistry.* "Sand is incapable of absorbing moisture from the atmosphere, or of retaining any valuable vapor or fluid."—*Essay on Calcareous Manures.*

ground—of very little value. Indeed, some excellent farmers have satisfied themselves that strawy manure is unprofitable for summer crops.

I am far from holding that opinion, however. The error consists in not applying it to the soil in the best manner. In the spring of 1840, I had no ground for field beets, but a small lot where corn had grown for two years in succession. It was unfit for such a crop without manure; and I had only fresh manure from the stable, which has long been considered most unfavorable to the beet. My necessity however prevailed against opinion; and I took the responsibility. From each line where the beets were to grow, two furrows were turned so as to leave a wide dead furrow. Into this the manure was thrown from the wagon, each fork full touching the one just behind it, till the row was completed. It was well covered by turning two furrows together over it, which *held it down* while the harrow was passing four times in succession, breaking, pulverizing, and mixing it intimately with the soil. Again two furrows were turned together over the row, and the harrow passed twice more—in all, six times. By this process the ground was reduced to a fine tilth; and if there were any better beets in the county, I did not see them.

To me, it was a most instructive experiment. I have often seen manure applied to corn fields, but never in any case where it was so completely incorporated with fine earth. Even in the driest part of that season, the ground was always moist and mellow.

I am satisfied that we have been too saving of our harrows. Thirty years ago, there was a method of plowing in this country, called "CUT AND COVER." It was plowing, not to the *shares*, but the *halves*—the furrow slice covering the space where a furrow ought to have been. I am apprehensive that our ideas of harrowing were learned in the same school. When grain is sowed, is it not the prevailing opinion that it is harrowed enough when the seed is covered? I had a narrow land harrowed sixteen times in one day, and was satisfied that the labor was well applied.

For beets, or corn, or potatoes, what would be the effect of plowing in a heavy dressing of stable manure, harrowing twice, and repeating the operations of the plowing and harrowings four times more, adding each time to the depth of the soil? I have not yet performed the experiment, but the nearer I have approached it the finer has been the crop. Thorough culture would seem to require that every little lump should be broken, so that the roots could wander freely in every direction, and that every drop of summer shower, should be caught and retained for future use. Hard land and thin soils have some resemblance to a dish bottom upwards.

An instrument for pulverizing the soil was invented a few years ago in Virginia by Thomas B. Gay. It is called the Drag-roller, for it operates just as a roller would that does not *turn* but *drag*. Take a hollow log, six or seven feet long, split it in two, and one-half would serve for this instrument. The greater the diameter, the easier it would run; and be less liable to clog by gathering clods before it. Three feet would be better than two, though either would answer.

Frame two pieces of scantling into it, connecting them in front; and to this fixture the team is to be attached.

Do you believe that clods as big as a man's fist, or as big as his head, are more useful to the crop than stones of the same size? I do not. But if we can break them—grind them to dust—and leave them on the land, they would do as much good as other mellow earth of the same bulk. Now in warring against the clods, this instrument is formidable; and most so before they become thoroughly dried. On the same day therefore that the plow turns them *up*, let the drag-roller grind them *down*, and let me suggest that lumps of barn yard manure would escape not much better.

Stable manure, however, is often saved for the wheat field; and at any time during the summer, either before or after harvest, it is taken out and thrown into heaps, where it lies wasting until seed time. It is then thrown round into large lumps as before mentioned, the plow covering some, while others too big to cover, stick up over the field. If the wheat is harrowed, perhaps some of these pyramids are upset or demolished; but often the harrow serves them as the plow did—gives them a shove and passes on. Now it seems very clear to me that manure applied in this way, is comparatively of little value.

There is another class of farmers who manage things differently. Soon after the warm weather commences in spring, they collect all the manure of the barn yard into large heaps; and work it over, two or three times in the course of the summer, so that the straw may moulder and be more easily mixed with the soil. This advantage—the only one that I can discover, is indeed secured, but at a heavy expense. The best part of the manure passes off to visit their neighbors, or roam at large through the atmosphere, leaving the worst part, though still of some value, for the owners. The praise of industry is theirs, and the reward of working for nothing and finding themselves.

Another set of farmers, more enterprising still, make up all their barn yard manure into compost. This is done by successive layers of manure, rich earth and lime, together with any refuse stuff, animal or vegetable, that may be at hand—to be turned and mixed several times in the course of the season. Such manure is always valuable; but with a little more knowledge, its value might be much increased.

Let us consider this subject. From a heap of fermenting manure, a vapor continually rises, very different from the exhalation of a pond, as our noses might testify. Perhaps some may think that such thin diet as that would be of no consequence to a plant; but I can assure them it is the best part of the manure. Humphrey Davy filled a three-pint vessel with a bent neck, from a fermenting heap of stable manure while it was hot, and turned the beak among the roots of some grass. Nothing but vapor left the vessel; yet in less than a week the grass grew with much more luxuriance than the grass in any other part of the garden.*

The value of this vapor is therefore evident; but how shall we save

* Davy's Agricultural Chemistry.

it? In the first place, the fermentation should be very gradual. Make the heap in the shade, or on the north side of a building, and manage it just as you would manage a coal-kiln. The more the air is excluded, the slower and better will be the process. Now covering it with earth will have this effect; but vapor will rise even when it ferments slowly, and therefore marl may be freely scattered through the heap as it is made; but no quick lime. Lime, indeed, should form an outside covering for the whole pile (when marl is not at hand,) but it should be carefully prevented from coming in contact with stable manure or any animal matter. It must not touch them. It spoils them. A layer of earth should be interposed, and then the lime would be highly useful in catching and retaining the fertilizing vapor as it rises.

I believe there is no difference of opinion on this subject among chemists. Humphrey Davy speaks in the plainest language against mixing quick lime with common dung as injurious; and other eminent men fully accord with the doctrine. On the outside of the heap, however, quick-lime in a few weeks would be carbonated, and after undergoing this change it might be safely mixed with the compost. A fresh coat may then be applied.

But some farmers may not wish to apply their barn-yard manure in the spring, or make it into compost; they may perfer using it after harvest, and yet not have it wasting in the mean time. In that case I would advise that it be thrown inward where it lies thin, just so far that this work conjointly with the work of covering it, shall amount to the least labor. Then cover the whole with straw or earth to protect it from the sun, and cause it to be trodden down by the cattle as firmly as possible, to exclude the air and prevent fermentation. Some of you may recollect when forking up such matters after harvest, that the straw in spots was bright and unchanged. That was where it was well trodden. All change is attended with loss; but as some change may be expected, strew lime or marl and plaster plentifully over it, to absorb or arrest the fertilizing vapor.

The effect of plaster (composed of lime and sulphuric acid) has long been a source of wonder; for it was a wonder how one bushel could add more than twenty times its own weight to a crop of clover. Inquiring minds, of course, have been busy in trying to explain the mystery; but I doubt if all the properties of this manure are understood even at this day. Humphrey Davy was inclined to think that plaster was a necessary part of the woody fibre of some plants, analagous to the bony matter in animal structures. The plant could not do without it, though it wanted but little; and hence so small a quantity had such a powerful effect. "Plants which seem most benefited by its application," says that eminent chemist, "always afford it on analysis."

When this theory was announced some thirty years ago, it was rejected in this country, where the effects of plaster were much better known than in England, but if he could have shown that it enters into such plants in any definite proportion, some of the arguments

against him might have been refuted. It appears, however, that he never pursued the inquiry with much interest.

Judge Peters of Pennsylvania, had done more than any other person to extend the knowledge of this manure, and to favor its introduction. He had been very diligent and minute in his inquiries, and though not a professed chemist, became satisfied that sulphric acid was the active ingredient in plaster. He showed from the observations of Berard, that lands near Catanea, in Silicy, abounding in volcanic matter, including sulphur,* were very fertile; and from an experiment by the same person, that brimstone, pounded, sifted and mixed with ashes, had a surprising effect on lucerne and clover. Sulphuric acid, greatly diluted with water, had a similar effect.

As a further confirmation of the effects of sulphur or sulphuric acid, when Chancellor Livingston was traveling in Flanders, he saw the farmers preparing pyrites for manure. This mineral is a combination of sulphur and iron, and when partially burnt is employed in the same manner, and for the same purpose as we use plaster. Dr. Chapman of Pennsylvania, found a similar result from sulphuret of barytes.

Last summer, a new work called ORGANIC CHEMISTRY, by Professor Liebig of Germany, was first published in this country, and it has been considered by those best qualified to judge, as constituting a new era in agriculture. It is not my intention, however, to detain you with any of its details, except his explanation of the effect of plaster on growing plants.

Ammonia is an essential part of the food of plants. It affords all vegetables, without exception, with the nitrogen that enters into their composition. It is very volatile, but sulphuric acid (furnished by the plaster) can prevent its flight, and fix it in the soil. This can only be done, however, when the plaster is dissolved. The sulphuric acid then unites with the ammonia, and the carbonic acid of the ammonia unites with the lime.

Such is the purport of Professor LIEBIG's explanation of this great mystery. If he is correct in ascribing ALL† the effect of plaster to this new combination, its importance in the economy of our farms, must be evident. All our fields, pastures and meadows ought to be strewed with it, and in accordance with his suggestion, it ought to be scattered in all our stables, and over all our barn-yards. The quantity required is not great, and many experiments may be instituted at a trifling expense.

I ought to say, however, that this theory appears insufficient for explaining all the phenomena in connexion with the use of plaster. Why is its effect on clover so extraordinary, and on wheat so insignificant? Judge Peters, after using it forty years, said he never found it beneficial on winter grain; and others, after long trials, thought it

* A late traveler writing from Italy, says of the peasants residing in the neighborhood of Vesuvius—"If their houses are burned, they return, when the lava cools, to build new ones, and cultivate a *soil inexhaustibly fertile.*"

† "The evident influence of gypsum upon the growth of grasses, depends ONLY upon its fixing in the soil the ammonia of the atmosphere."—Liebig, p. 142.

did little for the natural grasses. All these, however, are powerfully affected by stable manure—by the very ammonia* which that manure yields. And what do we observe? Clover of luxuriant growth, and close along side of it, wheat without any indication of benefit received, though both have been plastered alike.

Again—Professor Liebig informs us that every shower of rain or fall of snow, brings down ammonia to the ground where the plaster ought to arrest it, and the plants that feed on it ought to be more thrifty; but we have much testimony to show that on many fields no trace of such improvement could be discovered. These facts may not be inexplicable, but they appear to me at present, quite sufficient to hang a doubt on.

I am aware that we have statements in regard to the use of plaster, of the most conflicting kinds, so that with some few exceptions, what one denies another affirms; but would this be so if it acts SOLELY in the manner described by Professor Liebig? A simple cause might be expected to produce a uniform effect. For instance: Poudrette is a simple cause, and as far as I have understood, it operates with uniform effect, whether on clover, wheat or cabbages.

On some soils, indeed, plaster is uniformly inefficient—not the trace of any effect is perceptible. This inertness has been more frequently observed in the *tertiary formation* near the sea coast, and therefore it was ascribed to the salt vapors.

Plaster, however, succeeds well in many places on the coast, and fails in others far beyond the sea breeze, so that the cause seems to reside in the soil and not in the air.

There are several substances that decompose plaster, besides the carbonate of ammonia. Carbonates of potash and soda have the same power. In the hands of the chemist, plaster and common salt readily change into sulphate of soda and chloride of lime; and Judge Peters said, "I ruined a bushel of plaster by a handful of salt—it was unfit for either cement or manure." Some of the oxalates also effect its decomposition.

When this happens, the plaster no longer exists, and most of these results are not known to be of much value as manures. Such failures, however, rarely occur on calcareous soils, or on such as contain a due proportion of lime. There plaster generally proves beneficial; and even in England it has succeeded on such lands. Many years ago, in the southeastern part of Pennsylvania, some farmers thought it would supersede the use of lime; but it gradually lost its effect, regaining it, however, when the land was limed. Wherever plaster proves of no use, therefore, TRY LIMING. On a small scale, it may be done at a trifling expense, and may lead to the most beneficial results.

And remember that plaster must be dissolved before it can do any good. Sometimes there is not rain enough for this purpose in summer, and therefore there is always a risk to sow it late in the spring. Let it be done early.

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* "Animal manure acts only by the formation of ammonia."—Liebig, p. 156.

I have now arrived at my last paragraph. From bogs or deep swamps, manure may be manufactured to a great extent. Three parts of peat and one of stable dung are mixed together and fermented through the summer. It was used in England* many years ago, and has been found in New-England, equal to the same bulk of stable manure, and more permanent in its effects.†

THE SEVERAL VARIETIES OF WHEAT, AND THEIR RESPECTIVE VALUE.

BY RAWSON HARMON, JR., WHEATLAND.

I propose to give a short description of several varieties of wheat that have been cultivated in western New-York. The first wheat cultivated was sown in the fall of 1788, on lands then owned by Indian Allen, and before it was harvested, became the property of Peter Sheffer, Esq., the present occupant. The amount sown was two bushels on about two acres. The variety sown was called the "*Lisbon*," or "Velvet Bald." The product was sixty-two bushels of fair quality. This was the only variety cultivated for several years. Its cultivation was very limited.

In 1794 the "*White Chaff*" bearded was introduced. The straw of this grew small and very thick on the ground, the heads short and well filled with a red berry. This was a hardy variety, and admitted of being sown late, and producing a fair return, the bran thick. These two varieties soon gave way for the "*Red Chaff Bald*," now called the old Red Chaff. This variety was well adapted to the Genesee Valley. In 1803 Peter Sheffer, Esq. of this town, harvested forty acres grown on the Genesee flats, that produced sixty-two and a half bushels per acre. The same season this variety sown on the oak openings in this vicinity, was nearly destroyed by the Hessian fly. Its long and well filled heads, its white and beautiful berry, gave it the preference over other varieties for more than twenty years, and some farmers in this vicinity continue to cultivate it. The bran is thin, and it yields flour of superior quality. For the last fifteen or twenty years it has been more subject to blast and rust, than some other varieties, and more inviting to the fly. On the new improved oak land it succeeds much better at the present time than on old or long cultivated fields. In 1833 I harvested 67¼ bushels from one bushel sowing of this variety from one and a fourth acre.

The "*White Flint*" wheat was introduced into this vicinity about twenty years since. This is a white chaff bald wheat, white berry, of a flinty appearance; the straw is smaller and grows thicker than the old red chaff, and the heads shorter. This variety was but little

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* Davy's Agricultural Chemistry.

† Jackson's Geological Report on Rhode Island.

cultivated for several years, and then sown after corn, or on ground not in good condition for a wheat crop. It was more hardy, and the straw somewhat softer and more subject to fall down on strong soils than the old red chaff. It was not subject to shell or scatter in harvesting, and was very hard to thresh with the flail, or to tread out with horses, so much so that many objected to it on that account. On the introduction of threshing machines, one objection to its cultivation was obviated, and after being sown some years the straw became more stiff, and not as subject to fall down, and the heads are now longer than when first introduced. It has now become the favorite variety with most of the wheat growers where it has been introduced. Its large white berry and very thin bran, makes it more valuable for the millers than any other variety. It is a solid, heavy grain, and tells well in the half bushel, frequently weighing sixty-four pounds to the bushel. The yields from this variety are not as heavy per acre as from some other varieties. When the seasons are the most favorable for heavy crops for a term of years, it will produce more per acre than any other variety cultivated in this section of country. It is not uncommon for it to yield thirty or forty bushels per acre. The Hessian fly has not been as destructive to it as to many other varieties. Flour may be obtained from this wheat that will command the highest price in market. Of late years it has become much mixed with other varieties, so much so that it is seldom found in its original purity.

"*Velvet Beard*," or "*Crate Wheat*," is an English variety, and was introduced into western New-York about fifteen years since. This is a red chaff, bearded, with red berry; it is a strong hardy variety. The straw is large, with long, heavy heads, and long, stiff beards. It is best adapted to strong soils, and has produced some heavy crops; in one instance fifty-six bushels per acre. It has not been very extensively cultivated; its long beards and red berry not meeting with favor with the farmers. The bran is thick, and the flour from this wheat is of a yellowish cast, of fair quality.

"*Indiana Wheat*," (by some called large flint,) was introduced into this vicinity about the time that the velvet beard was, and has not been very extensively cultivated. It much resembles the old red chaff in its growth and appearance, except that the chaff is white, and it shells more freely, and has the same objections existing against it. Within the last ten years there has been several new varieties introduced into this vicinity. None as yet appear to succeed as well as some of the old varieties, most of them not having proved hardy enough for this climate.

"*Kentucky White Chaff*," bearded, better known in western New-York, as "Hutchinson," or "Bearded flint," or "Canada flint," is a variety which was introduced by Mr. Hutchinson of Cayuga county, and has been very extensively distributed through this State. It is a hardy variety, and is said to be three or four days earlier than the flint. With me it has ripened at the same time under the same culture. The berry of this variety is short and plump, and as white as the flint, the bran somewhat thicker, and it produces flour of a high

quality. The straw is coarse and stiff, heads short and clumped, with long beards. It is very easily shelled out, and if it is not cut rather green, there is a loss in harvesting. This variety is a favorite with many. Where it has been cultivated the longest, it is admitted that it will not, on the average, yield as well as the white flint. It requires to be sown one-third thicker than the flint. It tillers out but little.

"*Tuscan*" is an English variety, and has been cultivated for several years. It is not hardy enough to stand this climate well; the straw is large, heads long, and bald chaff, large white berry, bran thin, flour of superior quality. This would be a valuable variety if it would endure our winters. It might do well at the south.

"*White Provence*" was introduced from France. I have had it under cultivation for several years. It tillers out more than any that I have cultivated; the straw is fine, of common length; heads bald and heavy, with a very long white berry; bran somewhat thicker than the Tuscan; flour of superior quality. It is a hardy variety. The only objection that I have to it, is its fine straw and heavy head, which takes it down, so that it is difficult to cut it with the cradle.

"*Belle-vire Talavara*" is an English variety. Its cultivation has been very limited. The straw is large, heads very long, chaff white, berry large and white, bran thin, flour of superior quality. If this variety proves hardy, it will become valuable to this section of country.

"*White Virginia May*" somewhat resembles the white flint in its growth; straw not as large, the berry of a reddish cast, and very flinty, weighing from sixty-three to sixty-six lbs. to the bushel. This is the earliest variety that I have cultivated, ripening from six to eight days earlier than the common varieties, and has produced well where the common varieties have sufferred severely by rust. When sown late it has not produced as well as some others, not having time to tiller out, seldom producing more than one or two straws to a root. From 1800 to 1810 this was the favorite variety in the vicinity of the Chesapeake Bay, but now has lost its former quality, or is superceded by some more hardy and coarser varieties, that produce flour of a superior quality. The above are all winter varieties. I have cultivated several varieties of spring wheat, but none of them will compete with winter wheats. The Italian is the most productive. The Tea wheat is of the best quality, much resembling the white flint in berry. The Italian is a strong red berry, bran thick, flour of not as fine quality as the Tea.

THE BEST BREED OF CATTLE—CROSSING.

BY J. H. HEPBURN, JERSEY SHORE, PA.

Among the subjects of inquiry embodied in your letter, I find the following: "Which is the most profitable breed of cattle?" In answering this inquiry, it will be necessary to treat it in its broadest acceptance, and pay no regard to the limited application it would receive, were its answer intended to apply to a particular district of country, where particular situation and particular qualities of soil and keeping would necessarily dictate the true answer to suit those peculiar circumstances. Taking it then in its broad meaning, a ready and short answer, if the times in which we live were less inquisitive and more easily satisfied without the why and the wherefore, would seem to some to be the best method of treating it. Leaving the community, for whose benefit particularly the answer is intended, to test and prove whether it is correct and true in all its bearings, I might say the Improved Durham Short Horn is the best breed of cattle for our country.

So much has already been said and written to prove this assertion to be correct, that it is difficult to say or write any thing at this time of day, new upon the subject; so much so, that the person who undertakes to do it to any extent, will many times find himself repeating the sayings and writings of others who have preceded him, and by whom it would appear almost the subject has been exhausted. This reflection would be nearly sufficient to deter most persons from an attempt to write at this day to enlighten or interest the community in this question. However, if much has been said and written upon this subject, there are still very many persons yet to be convinced as to what is their true interest in the character of the stock they keep; and if in other countries those arguments, and a publication of the practical results of experience has resulted in good, it is only an additional stimulant to try their publication here, in hope of the same effect. The subject however might be greatly varied, and with additional interest to our community. I may enlarge the particular answer above given, as I proceed, and include with the Durham family that breed of cattle that can be produced by the Improved Durham Short Horn bull being crossed with our best common cows, (thus enabling our farmers, whose profits would not enable them to procure the breed in its purity, to partake largely of the benefits resulting from the introduction of the Durhams among us;) stating at the same time some prominent faults in the management of the Durham bull and his progeny thus procured, that call pretty loudly for correction.

The great desideratum with the farmer and the grazier—for they are so intimately connected in our country, that where you find the one, you always have the other—in the selection of his stock of cattle, is to procure a breed that will yield him the greatest profit, both in the dairy and in the shambles; in other words, he wants a breed of cattle that will yield him the greatest return for the food consumed

by them in the shortest possible time. This, from the experience I have had in my own stock, and from the observation I have been able to make on the stock kept by others that have come under my notice, can be procured from no other breed of cattle than the Durhams, to the same extent. I have been so well assured of this from my own practical experience, that I am confident the greatest impediment to the universal use of the Durham with all our farmers, arises from their carelessness in not making themselves acquainted with the science of breeding. They do not consider that if they would have a good breed of cattle, they must have something to start with that has been fitted by care and attention to do that which they want done. They cannot produce a herd of Durham cattle from using a Durham bull with their common cow, and then going on to breed from half-blooded bulls and their old stock of cows. This course has been with many men an error that has proved fatal to their hopes. Many persons who have for years been the owners of large herds of cattle, have yet to learn the A B C of the science of breeding; and are even unacquainted with the meaning of the term "blooded" as applied to cattle. If they would call your attention to any particular animal in their collection, they will praise it for being the possessor of some peculiar excellence in their estimation, without even once mentioning the hereditary properties of the family from which it is descended; not knowing that to make good properties in the cow genus, permanently valuable, they must have received them from their ancestors; and by a course of judicious breeding, have been fitted to transmit them again to their offspring; and that then, and only then, are they entitled to the application of the term "blooded." It is often amusing to hear the remarks and fancied profitable results that are to accrue from the "*blooded calf*" that the farmer has obtained from a beautiful Durham bull that may have been driven through the country, and has accidentally come in contact with a diminutive, homeless, half-starved cow when she was in heat. When the progeny of this half-breed has been produced from some of his relatives on the side of the dam, to listen to the regrets and expressions of deep disappointment, that the *Durhams thus produced* were no better than the old breed, after they had been carried through a similar course of starvation, upon sour skimmed milk and bleached corn-stalks, was enough to make a man—feel for his country. It has often been urged against the Durham cattle, as a very weighty objection to them, that they require more care and more attention to their keeping than the common stock of the country. This may be true in very many instances. For many, I was going to say the majority of farmers in our widely extended country, keep their stock in such a manner, that if it should happen to be made the subject of written communication, and their names mentioned, would call forth a blush of the deepest crimson to their faces. Those who keep their cattle at pasture in the highway through the summer, when it requires their utmost vigilance and activity to procure a "half fill" through the day and night, and in winter, shelter them upon the lee side of a pole fence, with an allowance of one sheaf of musty well bleached corn

stalks, or a handfull of straw, and keep them well littered with snow and ice, should never procure a Durham stock. Let them stick to something that has reached a point so far down in the scale of deterioration that they cannot get worse. To the man who is disposed to attend to the comforts of his domestic animals as they should be attended to, I would hold a different language, and endeavor to prove to him that for this opinion, he is contradicted by the actual experience of so many who have tried it, that it behooves him to lose no time in testing the matter for himself; as every year that he defers it, is adding largely, or at least proportionably, to his losses on the score of his stock of cattle. Admit the Durham requires care and a generous supply of fodder, so far as it has been my lot to see them, I have never seen them lose upon this. Those that I have seen and knew to be kept well, always improved; and it has as yet always been the pride of those who owned them to make them do so. How far a system of privation would affect them, remains to be tested; but to those who have extended a liberal hand to them, they have invariably made a rich return for all their care and attention. Instances are not rare of animals of this breed who have attained the greatest known weights in the shortest known time. In addition to the numerous published cases of this kind, I may add one of my own. I had a bull calf sired by my bull "Sam Patch," out of one of my cows, that was dropped on the last day of March. He ran with his dam in the pasture, which was early and fine, until the first of September, when he was weighed in the presence of a number of witnesses, and drew, to their great astonishment, five hundred and eight pounds. Neither he nor his dam were allowed any thing in addition to grass, but salt, which they had as often as they would take it; and he had access to no other cow than his dam, from whom he could have had a supply of milk. I may also add, that this is not the only case I could mention, and I mention this one particularly only to show that I have, in addition to what some others have given to the public, some particular data to go upon for what I say. How different are these weights and this return made for care and attention, from what I should have received from any other breed of cattle that we are acquainted with; and what a rich return to those farmers this would be, who, to carry on their operations profitably, rear a considerable number of calves annually. Indeed this early maturity, this great capacity to acquire such a ripeness of their good points as to carry such weights, while they are rapidly growing, constitutes one of the most valuable qualifications of the Durham. Where dairy properties are in request, I feel free to say, without the least hesitation, the good qualities of the Durham stand pre-eminent. So far as my own experience goes, I have tested this matter to my satisfaction; and on this point I speak after full examination, though my experience has not been very long. There is no qualification claimed for the Short Horn, that has been more caviled at than this same milking property. But it does appear to me, and certainly is, in those animals that I have known of this breed, a quality that without great injustice being done them, they cannot be deprived of. It is admitted, I believe, without hesitation,

that the early improved Durhams were not generally so large milkers as they have become since the attention of the breeder has been turned to this point. Beef was the first object, and to get the greatest possible amount of that in the animal was the desideratum, and the dairy was too much overlooked; but in process of time the opponents of the Short Horns themselves brought them rapidly into notice, for this very quality. When attention was called to it, and selections for breeders made from those that were good "at the pail," the truth of the breeder's axiom, "like will produce like," was triumphantly proved; and in a short time the Durham cow, selected and bred for that quality among her other good ones, stood as pre-eminent in the dairy as she had before for the shambles. And now the grazier, the dairyman and the butcher, all hold the same deep interest in her, a truth that can apply to no other breed of cattle, as a breed, in the wide world. All that is required to produce deep milking Durhams, is to breed for them.

One of the strongest arguments in favor of the superior excellence of the Durham, is fairly deduced from the fact, that whenever the common cow, ragged and angular and defective as she may be, is served by a Durham bull, the progeny is at once decidedly superior to the dam in every respect; and if the bull should be descended from a family characterized by deep milking, the calf, if a heifer, never fails to have that quality developed to a very great extent. So great indeed is the development of this property, that many persons are to be found, who in view of it, declare they would rather have the half breed than the whole. But this is easily accounted for. They consult an injudicious economy, and do not so much consider what they really want, as what they are willing to pay for. Great is the mistake of that man who prefers half bloods to full bloods, and who, for the purpose of getting them, purchases a half blood bull to commence with. However, such cases of short sightedness are by no means rare, and nothing but a proper knowledge of breeding, a desire to obtain which must be induced by increased interest in this subject, by diffusing a history of its benefits among the community, can or will effect this.

There is a want of principle among many breeders, on a small scale, that has been practiced to a considerable extent, that I have no doubt has done much towards retarding the increase of the Durhams in our country. I allude to the practice of selling grade cattle for full blood!! The community have in many instances, (some to my knowledge,) been cheated in this way, and a great amount of prejudice excited by the disappointment experienced in the progeny of such bulls, where they have been used to better the stock of a neighborhood.

There is, however, a pretty sure remedy for this evil if the purchaser will only apply it. Let him in the first place, take the pains to inform himself what a good bull should be, in his appearance and the manner in which his points should be proportioned and developed, to make up the form of the whole animal.

Then upon inspection of his pedigree, and acquiring a knowledge

of what valuable properties have been hereditary in the family from which he is descened, he will be able to discover exactly whether he is getting such a bull as he wants or not. This may sound strange to many, to be told that so much care and pains, and perhaps expense, must be taken in selecting a bull to breed cattle from. Let it be so; I have yet to learn, that in the ordinary course of affairs, any thing valuable or really worth possessing on account of its intrinsic good properties, is to be obtained without such care and cost and labor. It is an error into which many cattle raisers have fallen, that they suppose, that if they once become possessed of a really good bull, the business is done with reference to producing a superior herd of cattle. Acting upon this principle, the community have frequently commended individuals for the spirit displayed in the purchase at a large price, of some celebrated Durham bull, when in truth by their course of management with that bull, their conduct has gone farther and done more towards extinguishing a right spirit in young breeders who were observing them, than whole volumes written in opposition to the Durhams could have done.

They have used their bull for a year or two, and when perhaps the first bull calf they have obtained from him and some favorite common cow, (accidentally in their possession, not particularly selected and that may not in reality be even a third rate animal,) is old enough for service, the full blood bull is disposed of, and they continue to breed from this bull calf and their old stock, just as it may happen. They still consider themselves improving their stock, while it is evident to those who closely observe that they are retrograding. If all our cattle raisers were men of acute observation in this matter, the thing might, under certain regulations, guided by a habit of closely studying their stock, be brought to do pretty well at the end of many years, but this unfortunately is not the case. The general cattle raiser must depend for his choice bulls and cows upon the scientific breeder who studies his business and devotes his time and his attention to the work, and the country generally will find their account in making it the interest as well as the pride of such men to keep up a stock of such animals for the market.

It is not so easy a matter to form,—if I may be allowed the expression,—a new breed of cattle, as many persons who are but little, if any, versed in the science of breeding, suppose.

It requires a degree of acquaintance with the habits and characteristics of the animals, and an amount of management and skill and indomitable perseverance that falls to the lot of few men to possess.

It is much the better plan for the ordinary breeder, when he is suited in a bull possessing the qualities he wishes, to use him until he has stamped those characteristics upon his stock, say for three or four crosses, which is not too deep breeding in such cases. After he has pursued this course for some years, let him dispose of that bull and procure another of full blood, from another family, and if possible possessing those same good qualities, to carry on his work. By such a course judiciously persevered in, the most valuable traits of the Durham may be acquired; yes, and maintained too. The breeding

and keeping of good cattle is very like the making of and keeping up the soil. It requires constant care and unwearied attention, and a judicious rotation of the proper crops.

The bull selected should be as free from defect in his make and shape as it is possible to obtain, and when making his selection, the breeder should always remember, that one great desideratum in stock is to get "the greatest possible weight in the smallest possible compass." It is not the largest looking animal to the unpracticed eye, that is always the heaviest, when you come to apply the tape line, or the scale beam. Great weight in cattle should and generally does, consist more in a ripeness and fullness of the good points, than in the large and coarse formation of the frame and limbs. This full development of the points and value can be observed by any one who is in the habit of paying attention, to acquire a knowledge of what constitutes value in the carcass of the cow.

Admit for the sake of the argument, that the Durham requires more keep than the common breeds of the country. For my own part, and I think I have also seen it stated by others, I am satisfied that they will eat and keep better upon coarser and rougher fodder, than will our common cattle. To show the amount of my practice in one case to obtain this result, permit me to state my course of management with my bull "Sam Patch." He has a strong tendency to become too fat in the grass season, so much so that I have been compelled to reduce him; and I assure you, it has not been easy to effect that object with considerable care. I have sometimes had him tied up in his stall about the middle of June, and after keeping him at a moderate allowance of hay for a week or two, we could not perceive that he was any poorer than when he was taken from the grass. I have then directed him to be fed upon straw alone, and have always observed that even at that season of the year he would eat himself full with avidity. In fact, summer or winter, I have never seen my cattle refuse straw or the roughest hay or grass we placed before them. Be it what it will, if it is sound, and such fodder as can be eaten by any cattle, they will consume it, and be apparently satisfied with it. And this is not because their allowance is short by any means, for they show their keeping as well as any other herd that is to be found in the neighborhood. I might go on and detail my own practice, for the purpose of showing that the assertions I have made are fully carried out by the facts, as I have stated them, in several instances, but as my object was general in the commencement of the paper, I will leave those matters for further communications.

AYRSHIRE CATTLE.

BY GEORGE RANDALL, NEW-BEDFORD, MASSACHUSETTS.

I will now attempt to give you some account of my importation of Ayrshires; but allow me first to state, that I have no pretensions as a good judge of stock, or of science as a breeder. I have imported from Scotland two bulls, not near connected by blood, to avoid that miserable practice of in-and-in breeding; also four cows and one young quey. Three of the cows were in calf when imported. One had a calf prematurely, and died from inflammation on the lungs. One cow died from eating a very small quantity of paint, and she left me a heifer calf six weeks old, by my bull Rob Roy. My stock was all bred by Mr. Lawrence Drew of Carmyle, near Glasgow. He has been a very successful breeder, and has taken very many premiums. *My best bull, Rob Roy*, was six years old in May last; he was out of a cow called Daisy. In June, 1838, Daisy took the eighth first premium at the County Shows of Scotland, and in September, 1838, she took the first premium of twenty guineas, at the Highland Society's Show at Glasgow, (open to the United Kingdom,) and became outlawed, viz: she could not be shown again for a premium.

Rob Roy had the first premium awarded him at the show of four counties, at Baileston, (Scotland,) in June, 1838, as the best bull in the two years old class. In 1840 he had the first premium awarded him at the Show of the Windham and Norwich Counties Society at Norwich, Connecticut; and in 1841, the Massachusetts Agricultural Society gave him the first premium at Bridgewater. This society gave premiums on blood stock only.

This bull Rob Roy, is, strictly speaking, a dairy bull, and very high bred; perfectly quiet; never had a ring in his nose, and a child four years old can drive him, and do anything with him. He is much inclined to take on flesh; has been wintered on barley straw and one and a half peck of ruta bagas per day; did not have one particle of hay, and come out in the spring looking like a stall fed animal. He has not had a particle of grain or meal since he came to the United States, excepting two days when on the road to Connecticut, when he had some oats. In a word, I will say, give him as much good English hay as he will eat, and he will be too full fed.

My cow Swinley was seven years old in May last; was in calf when I imported her in 1839, by a high bred bull that took the first premium at Baileston, in June, 1839. The premium was a massive silver medal elegantly wrought, and seven sovereigns. The calf from Swinley was a quey, dropped March 20th, 1840. I call her Maggy. She is very much like her mother, and bids fair to rival her as a milker. She gave me a heifer calf on the 3d of April last, by my second imported bull Roscoe, and for more than two months she gave twelve quarts of milk per day.

Swinley is a small cow, low in the leg, fine in all her points, high bred, and is *what I should call a large cow in a small compass*, and

if well fatted, would probably weigh from seven fifty to eight hundred pounds. Her last calf was a quey, by Roscoe, dropped the 23d of April. The greatest quantity of milk per day was in June, and 25 quarts, (when I speak of quarts I wish to be understood the *old fashion milk or beer measure;*) and the largest quantity of butter per week has been fourteen pounds. Swinley is a high bred cow, out of a cow called Rachel, who, when five years old, had taken five first premiums at the county shows.

My last imported cow, Crummie, was shipped from Glasgow, via Liverpool, in April, 1841. She was in calf by a thorough bred bull owned by Mr. Drew. He speaks of the bull as the best he ever owned, or ever expects to own. Crummie was five years old at the time she was shipped, in April, 1841. She dropped her calf the first of March, '41, and when shipped was giving 24 quarts of milk per day. She was hurt across her back on the voyage, and did not get over it up to the time she gave me a bull calf, on the 7th of February last. She got up to 22 quarts of milk per day, but did not exceed that quantity at any time after calving. If she continues to do well, I shall expect her to give 26 quarts per day, next season. I have two young Ayrshire heifers, bred by Mr. Cushing of Watertown, Mass., from stock he imported. Each gave me a heifer calf, one in June, the other in July last, one by my bull Rob Roy, the other by Roscoe. I have four heifer calves this year, all full blooded, and of much promise. I do not allow a calf to suck the mother, not even to know what a teat is. We take them off and bring them up by hand, giving them new milk for a fortnight; after that we give them skimmed milk, with a small quantity of Indian or oatmeal in the same.

As to my success in breeding, I think I may say I have been successful, although on a small scale. I shall have seven full blooded Ayrshires to come in next year; have four full blooded heifer calves, two bulls and one bull calf, which is all the full blooded stock I have.

In my opinion the Ayrshires are better adapted to the short pasture and fickle climate of New-England, than any breed of cattle with which I am acquainted. They are not great consumers of food, and I think give a greater return in butter and milk for the food they consume than other breeds. I have several very good native cows; and in winter the natives and Ayrshires are standing together, and are fed alike, as to quantity of roots, all having what hay they require; but there is a very marked difference in their appearance in the spring, and in favor of Ayrshires. From their disposition to take on flesh, I should think them a superior stock to breed from for the shambles. But I think where a long bite is always to be found, and other provender in abundance, nothing will ever rival the Improved Short Horns for early maturity and quantity of beef.

MR. RUST'S OX—NATIVE CATTLE—CROSSING—VALUE OF CROSS BRED ANIMALS AT THE PAIL AND IN THE YOKE—THEIR HARDINESS.

BY HENRY S. RANDALL, CORTLANDVILLE.

The celebrated ox, fed by Mr. Rust, a portrait of which was given in the last volume of Transactions, was bred by Jabez Abels, in the spring of 1834, near Cazenovia, and was kept by him until somewhat over three years old. He was then sold to a Mr. Smith of Woodstock, who in the March following, sold him to F. Kimber, a butcher of Syracuse. He subsequently changed hands several times, and finally was purchased by Mr. Rust, on the 19th of Feb. 1841. He weighed at that time 2,360 lbs. On the 16th day of January following, his weight was 3,400 lbs. Some time in July, 1842, he was weighed in a canal weigh lock, with as much accuracy as the case would admit of, and he weighed 4,100 lbs.*

Feed.—Besides hay, in the winter he was generally fed about half a bushel of ruta bagas or potatoes, and about 12 quarts of corn meal per day. The last summer he was daily fed 12 quarts corn and 4 quarts oil meal, and during the latter portion of the time the meal was boiled. He always eat well, which Mr. Rust attributes in a measure to feeding him raw onions, (two or three each day,) which course he adopted in consequence of a suggestion from Mr. Wm. Gibbons, the celebrated horse and cattle breeder of New-Jersey.

Pedigree.—Mr. Abels, the breeder of this ox, is dead. Not a particle of proof exists to show that this famous animal had a drop of any other blood in his veins, than that known as the "Native"—and all the facts and circumstances which can be discovered in relation to his breeding, go to show that the assumption that he was of Hereford descent, is entirely gratuitous. It is not pretended that this assumption rests on any other fact, than that he was brown in color, with a white face! All know this is not an unusual color in our native cattle. And at the time of his birth, not a Hereford had ever been introduced into that section of our State.

This fine ox, in the judgment of connoisseurs, rivaled in form and in his valuable points, the best animals of the most improved breeds. He was as active and sprightly as a young bullock, to the last. At the State Fair in September, the crowds who constantly thronged about him, found it difficult to keep pace with him walking, when he was led about by his groom.

We are quite willing to concede that this animal cannot be regarded as an average specimen of the race he represents. But it would seem to establish one important point, i. e. that our native breed *has*, and therefore *may again*, produce animals superior for the shambles, as it has concededly, in innumerable instances, produced those of the highest milking properties. In comparing our fatted

* This ox was slaughtered in the city of New-York, this winter, but we have as yet been unable to obtain his weight, &c.

cattle with those of England, we sometimes are disposed to forget the difference in the time, feed, care and skill, usually made use of by the English and American feeder, in preparing animals for the butcher. The ox under consideration is but one of several, of nearly equal quality, which have been fattened by Mr. Rust. Under the skillful management of this gentleman, thousands of those which are now annually sent half fed and half fattened to market, might be made to rival those which have been fed by him. The Geneva and Elbridge cattle, exhibited at the State Fairs, go to support the same conclusion.

We shall not be understood as asserting that our "Native" breed is the best, or even equal to some foreign varieties. But what we wish to impress on the public mind is this, that our "native" breed, or a judicious selection of them, will furnish the suitable groundwork, *on which the American breeder can, by selection and crossing, upbuild an improved variety, excelled by none.* If this can be done, every one must perceive the superior convenience and economy of such a course, over the attempt to substitute an entire foreign breed for our own. That it is in process of being done, and that it has already been measurably accomplished, we are willing to submit to the ordeal of the *show yard, the shambles, or the pail.*

After some experience with several English varieties, our conclusion is unhesitating, that it is to the blood of the Improved Short Horn, mainly, that we are to look for the ameliorating change. We will not pretend to say, that "dashes" of other blood would depreciate, or under certain circumstances, would not even prove advantageous, to the produce of such a cross. For high or thin soils, the cross effected by a Durham and Devon bull, on our native stock, might be superior to that effected by a pure Durham, &c.

There is less of skill and mystery in making the first cross between the Durham and the native, than many suppose. That there will be a disparity between the produce of different cows by the same bull, is of course true. But with *the proper bull*, the cross will always be a successful one—that is to say, the produce will always be a decided improvement on the dam. But the qualities of the dam will always more or less affect those of the offspring, and therefore we should breed from cows possessing, so far as they can be obtained, the points desired in the produce.

We have used the phrase "the proper bull,"—and this does not always mean the best bull, *when judged by the standard of the improved variety to which he belongs.* Ample experience has abundantly convinced us that many superior bulls of the Short Horn variety are not successful stock getters with native cows. It is to be regretted that a proper respect to the feelings of others does not pemit us to specify instances of this in animals well "known to fame." The *largest* class of Durham bulls rarely succeed with the native cow; and if inclining to coarseness, the failure is still more apparent. A large and coarse bull usually gets shapeless, overgrown calves. There is a family of Durhams characterized by great height and length—standing on high bony legs, and which, although not desti-

tute of a certain symmetry themselves, cross but indifferently well with native cows. The true bull for the cross is one full in all his points, but *small of his kind.* He should be *delicate to a fault.* Animals are sometimes said by breeders to be bred "too high" or "too fine." This is produced sometimes by in-and-in breeding, sometimes by breeding between sires and dams, both inclining towards the same fault. For example, "Volage"* was a cow of uncommon beauty and style, but small and delicate to a fault. She was bred to "Mammon," (Herd Book No. 2,297,) a bull possessing precisely similar characteristics. The produce was a bull, (Volunteer,) which exhibited all the indications of an "overbred" animal. He was small, not exceeding in bone and carcass many bulls of the native variety. Yet the produce of this bull with native cows, has been pronounced by competent judges unsurpassed, and entirely superior to that of many, in individual properties, far superior bulls. All the most successful stock getters we have ever known with native cows, have been small and very fine boned animals.

Grade heifers and steers have been bred from *ordinary looking cows* in repeated instances, in this county, which bore so close a resemblance to the pure Short Horn, that it would be difficult for any one to distinguish between them. Some of the best milkers ever raised in the county, are among these grade heifers. On the average, they are clearly and manifestly superior to the native stock in this particular. Another important point we consider equally established, viz: that the grade steers will make good *working oxen.* We have examined a yoke of three year olds, coming four, during the past week, owned by Mr. Alfred Chamberlain of this town. They are of a high Durham form, white, except the ears and nose, and weighed about a fornight since, 3,130 pounds. Mr. C., whose veracity is not only above question, but above suspicion, informed us that these steers had been almost constantly at work during the past summer, doing the principal work of a medium sized farm, and that they had received no extra keep beyond that allowed by most farmers to laboring cattle. They are not large in frame, and their weight proceeds from their *condition!* Other grade steers have been put to the yoke, by several of our farmers, and in all cases with satisfactory results.

There is yet another point to be considered in estimating the value of this cross, to wit: their hardiness and endurance of coarse or short keep. We will first detail our own experience during the present winter, which only serves to corroborate that of other years. Our farm was severely affected by a drouth during the past summer, and our hay crops were very light. We have wintered up to the present time, (Feb. 14th,) between thirty and forty head of grade Durhams, as follows: the yearlings have got one feed of hay daily, and two of barley and oat straw, and *nothing else.* Every one is in good condition—better than that of one herd in twenty of native yearlings, *however kept.* Twenty head of cows and heifers receive a feed of

* Bred by Mr. Rotch. The pedigree of this animal is incorrectly given in the Herd Book, she having been confounded with another animal of the same name.

hay at the stacks in the morning; they are stabled towards night and fed straw, and the twenty receive three bushels of potatoes daily. One out of the twenty receives meal, on account of having entered the winter thin in flesh. With the exception of three heifers, which were allowed to suckle late calves, and consequently entered the winter poor, all are in first rate condition. Some of them are fat, and not one has fallen away.

Last week we made an excursion among some of our breeders of grades, with a view to ascertain if the experience of others coincided with our own in wintering this kind of stock.

Mr. Lyman Hubbard of Homer, has a herd principally the produce of a bull bred by ourselves, which we shall hereafter have occasion to allude to. Like ourselves, Mr. H. gives but one feed of hay daily, and straw with a small allowance of roots, equaling probably about four or five quarts per head. Every grade animal in his possession, with the exception of a single sick one, are in fine thriving condition. A native heifer among his yearlings, fed like the rest, was the poorest one in the lot. Mr. Hubbard is fully satisfied that the grades are as hardy and as easily kept as "any cattle ever owned by him."

Mr. Manly Hobart of Homer, owns the bull spoken of as the sire of Mr. Hubbard's stock. He is four years old past, and is three-fourths Durham, and one-fouth New-Leicester. This bull has been fed exclusively on straw through the winter, until quite recently, and he now receives a trifling allowance of roots. He has the appearance of a high fed animal! From experience with this, and various grades bred by him, Mr. Hobart considers them as hardy, and as patient of coarse keep as the natives.

Mr. Alfred Chamberlain, already referred to, had fed similarly and arrived at similar conclusions. Hon. John Miller, and John Jeffrey, Esq. of Truxton; the Messrs. Boies, Mr. Joshua Chamberlain of this town, and many others who have bred grades to a considerable extent, unite in the same opinion. Indeed, we consider the point a settled one, *where the grades are the get of medium sized, compact, and hardy constitutioned Durham bulls.*

It is to be regretted that the spirited breeders of grade stock in this county should omit the opportunity of exhibiting their animals at the State Fairs. It would afford an excellent opportunity for those who object to crossing to submit their theories to the test of experiment.

We will engage, should any breeder of pure bloods invite such an appeal, to exhibit grade animals at the next State Fair, which shall not fall below the average of the *pure bloods* of the same age, which shall be there exhibited.

HINTS ON DESCRIBING FRUITS.

BY JOHN J. THOMAS, MACEDON.

It is a source of much gratification that the culture of fruit is receiving in some measure its proportion of the increased attention to rural pursuits. Great neglect, it is true, still exists; a good fruit garden, properly so called, is at the present moment a great rarity in most parts of our country. There are indeed many collections which contain some fine fruits, but very few which consist entirely of selections from first rate kinds, and which afford an uninterrupted succession of the best throughout the whole year.

A part of this deficiency is owing to apathy, and a part to the difficulties in the introduction of the best varieties. Among these difficulties, are the numerous errors in the names of fruits, existing all over the country, and the consequent perplexity in procuring those which are genuine; the multiplication of new varieties differing but slightly from old and celebrated ones; the limited and local knowledge of such varieties, whose adaptation to other regions has never been proved, and the disappointment when they are transplanted to other and ungenial climates; and not least, the meagreness, looseness, and inaccuracy of nearly all books of descriptions which have yet been published. To remedy these difficulties, it is obvious that numerous experiments must be resorted to. Extensive collections of fruit must be made from all practicable sources, and their adaptation to the various soils, situations and climates of our country, thoroughly tested.

The importance of attention to the variation in fruit caused by a change in soil and climate, appears to be much underrated. We have been too much governed in our reasoning and practice in this as in other matters of culture, by the practice on the other side of the Atlantic. The London Horticultural Society made a collection of some thousands of varieties, and a minute and careful examination of these for several successive years, afforded the means of deciding on their merits, names and synonyms. In a country so limited in extent as England, these experiments, and the descriptions and characters resulting from them, were applicable without much variation to every part. But the climate of America is greatly different. Hence we find that European fruits of the highest quality, when introduced here, become in most cases of little value. Probably not half a dozen of the whole British catalogue of apples, when grown in this country, will bear any comparison with such of our finest table fruits as the Swaar, Spitzenburg, and Rhode Island Greening. Yet in the face of these facts, many of our books of fruits copy the English descriptions without a word of variation. The same change in quality results in some degree from a change of locality here. The extreme portions of the United States are almost as remote from each other as Norway and the Great Desert in the old world; and fruit well adapted to one portion, may be wholly unfit for another, even in the same latitude.

Many of the pears cultivated by the late Robert Manning of Salem, and considered by him as of great excellence, when grown in western New-York, from grafts cut by his own hands, are certainly only second or third rate. That this is not entirely owing to a difference in mere taste, is inferred from the fact that the Virgalieu, which in most parts of New-York is decidedly one of the finest varieties, is pronounced by Kenrick in the neighborhood of Boston to be "an outcast, intolerable even to sight." It is true that pears are more affected by circumstances, than most other fruits; but these facts should teach us caution, especially in preparing descriptions.

Hence experiments from a single collection on a large scale, in any one part of the United States, could not be relied on as of general application throughout the country. Several such collections would be needed according to differences in climate and other affecting causes.

It will be evident that the groundwork and desired end, will be accurate descriptions, not only for identifying old and well known varieties, but for rendering the others easily known.

Peculiar difficulties exist in describing fruits. Different *species* are distinguished by strong and unvarying marks; hence specific characters in botany are attended with little difficulty. But varieties pass into each other by insensible shades; or often differ so slightly and by such variable characters, that it becomes exceedingly difficult to discriminate. Even experienced cultivators find it necessary to place different varieties of fruit together before the eye, which, when taken apart, might be pronounced identical. Hence the impossibility of speaking with confidence in many cases from mere descriptions, however excellent and perfect they may be.

It may be proper to exhibit briefly some of the perplexities which cultivators must contend with in the use of most of the works already published. It seems indeed, that in proportion to the difficulties, has been the want of care and attention. A few instances out of many, are given by way of illustration, not to find fault, but to show where we stand. English writers possess the advantages of long experience and small territory, yet McIntosh says that the nomenclature of pomology, "has long been a disgrace to the horticultural literature of the country." What shall we say then of our own country? It will be observed in the following examples, that those fruits are chiefly selected which are not encumbered with doubtful synonyms, and the discrepancies are not therefore from different varieties with the same name:

Alexander apple—"Excellent and valuable fruit." *Lindley, Kenrick.*
"First rate." *Downing.*
"Second rate—shy bearer." *McIntosh.*

Swaar—"Skin *greenish* color, blush on the sunny side." *Floy.*
"Yellow." *Downing.*
"Flesh juicy and well flavored, but *not rich.*" *Manning.*
"Great and uncommon flavor and *richness.*" *Coxe, Bridgman.*

Summer Queen—"Of the *finest* quality." *Coxe.*
"*Second* rate." *Downing.*

R. I. Greening—"*Roundish.*" *Downing.*
"*Flattened* at base and summit." *Kenrick.*
Priestly—"Form *oblong.*" *Kenrick.*
"*Roundish.*" *Downing.*
Pennock—"*Flat.*" *Downing.*
"*Round*, rather oblong." *Manning.*
Yellow Harvest—"*Roundish.*" *Downing.*
"*Flat.*" *Manning, Coxe.*
Ribston Pippin—"Of a *flat* form." *Manning.*
"*Roundish.*" *Downing, Bridgman.*
"*Globular.*" *Kenrick.*
Old Newington peach—"Flowers of *small* size." *Prince.*
"Flowers *large.*" *Lindley.*
Madeleine pear—"Stalk an *inch* long." *Lindley.*
"Very long, often *two inches.*" *Prince.*

It may be remarked that form, color, and other characters may vary; though it is believed the *average* of specimens in the *average* of seasons, cannot greatly differ. But there is one quality, which in the midst of change and discrepancy, is always resorted to as a final and decisive test. This is the *flavor*, which is indeed the great distinguishing point in all varieties of fruit. But strange as it may seem, not one quarter of all the descriptions in books state whether a fruit is even *sweet* or *sour*, and some which do, contain such palpable errors that the statement is of no value. For instance, the Alexander, Summer Queen, and other decidedly *sour* apples, are described as "*sweet*" by some of our authors; and the term "sugary," applied to rich sour apples is common both here and in England. A few additional instances are given:

Imperial Violet plum—"*Sweet*, and of a rich taste." *Prince.*
"*Harsh, acid.*" *Kenrick.*
Madeleine pear—"Flesh melting, buttery, *sweet.*" *Lindley.*
"Taste *sugary.*" *Coxe.*
"With a most agreeable *acid.*" *Manning.*
Yellow Egg plum—"Rather *sweet*, with but little flavor." *Prince.*
"Flesh sprightly, juicy and fine." *Coxe.*
"*Acid* and *austere.*" *Kenrick.*

At the same time that this most important character is thus overlooked, others common to all varieties of one species are carefully noted. It is well known for instance that one of the universal marks of the plum (and some other stone fruits,) is a *suture*, extending generally half way round, and opposite to one edge of the stone. This suture is sometimes nearly obselete or only a single line on the surface, and at others a deep furrow; and simply naming the suture is no character at all. The following are from an American work:

Orleans—"One side of the fruit marked by a suture."
Wilmot's Orleans—"A suture running through one side."
Jacinthe—"Divided on the side which is parallel with the edge of the stone by a suture."

The covering denominated *bloom*, it is also known, is common in

a greater or less degree on all plums; yet the following and many more precisely similar, are from a single work:

Maitre Claude—"Covered with a thin white bloom."
Purple Egg—"Skin covered with bloom."
Swiss—"Skin covered with bloom."
Early Tours—"Skin covered with bloom."
Violet Perdrigon—"Skin covered with bloom."
Red Perdrigon—"Covered with bloom."
White Diaper—"Covered with bloom."
St. Julien—"Covered with bloom."
St. Martin—"Covered with bloom."
Italian Damask—"Skin with a bloom," &c. &c.

Endless contradictions might be quoted to show the confusion in synonyms. This confusion has been in a great degree removed in England, by the labors of the London Horticultural Society; but even those high standard works, Lindley, and McIntosh, contain some striking disagreements. For example, the varieties which Lindley describes as Grosse Mignonne, Niel's Early Purple, Pourpree Hative, Royal Kensington, and Superb Royal, are all described by McIntosh as a single variety under the name of Grosse Mignonne, of which he gives *thirty-two* synonyms.

But it is needless to extend these quotations further, and indeed it is no pleasant task thus to exhibit the great neglect and want of care which has more or less characterized this branch of horticultural literature. The disease, however, must be known before the remedy can be applied; and the distinguished authors whom I have quoted, should this ever meet their eyes, will, I doubt not excuse me, especially as contradictions do not imply that *all* are wrong. These great deficiencies I have never seen pointed out; and the perplexities which I have met with, and the hope of offering something useful, have induced me to furnish these hints, which I shall close by suggesting a few points for attention, in writing descriptions.

1. A thorough knowledge of the fruit should be obtained by several years cultivation in different soils and circumstances, and a close examination of the quality compared with that of other varieties, and of the variations in size, shape, color, and flavor, from various influences.

2. After this examination, all the distinctive and permanent characters should be selected and carefully noted; or if those of a varying nature are employed in description, the fact should be stated.

3. The most striking and unchanging marks should be taken as a guide to classification; as for instance, in the peach, the glands of the leaves, and the distinctive qualities of pavies and melters.

As *taste* is a very important quality, no pains should be spared to describe it as distinctly as possible. As an example, the degrees of sourness in apples, may be expressed by numbers, as follows:—

1. Sweet—as Tallman Sweeting, Bough, Jersey Sweet, Autumnal Swaar.

2. Perceptible shade of Acid—as Black Gilliflower, Pennock, Swaar, Rambo, Peck's Pleasant.

3. Sub-acid—as Fall Pippin, Priestly, Baldwin, Sine Qua Non, Red Juneating.

4. Acid—as Æsopus Spitzenburg, Rhode Island Greening, Gravenstein, Jonathan.

5. Very acid—as Summer Queen, Kirk's Lord Nelson.

6. Very acid and austere—as Hewe's Crab, Siberian Crab.

Other qualities of taste may be described in a similar manner by comparison with our most celebrated and well known fruits. The preceding examples are given only by way of illustration; the gradations may not be correct in all cases, as they are named entirely from memory.

There are many other points of greater or less degree of permanence, as time of ripening, color, size, shape, growth of the tree, marks of the leaves, size of the flowers, &c. most of which will assist in describing and classification.

The importance of establishing extensive pomological collections for examining the host of varieties which exist in the United States, must be obvious. Such collections, in some instances, are already commenced, but being in private hands, must be more limited than if the work of an association with extended influence and power. It would, perhaps, be hardly proper for the State Agricultural Society to undertake any thing of the kind; but whether it might not be highly useful in collecting and disseminating varieties, is suggested as a matter for consideration.

REMARKS ON SHEEP BREEDING,

BY SOLOMON W. JEWETT, WEYBRIDGE, VERMONT.

So far as your inquiries in regard to sheep are concerned, I shall rely mostly on my own observation, a little on others better informed, for the views I may give you. Your inquiry respecting the crossing of Merino and Saxony with the South Down, is, I think, readily answered. My own mind is fully matured on that subject.

No doubt but to select choice fine wooled bucks and breed from the South Down ewes, would be the best cross that could be obtained from coarse wooled sheep, for our latitude, for the latter variety of sheep appears to be a connecting link between the fine and coarser breeds. In this cross, the lambs would gain the best possible chance for milk, whereby all points of carcass would have full chance for a natural development. But to let the large coarse breeds of sheep into a flock of small boned fine wooled ewes, would be ruinous to the flock, as I have seen fully tested. It is against the laws of nature to perfect a larger race of animals from females of much smaller stature. The carcass is not only too small to deliver the offspring, but incapable of affording sufficient nutriment either in embryo or after birth. If mutton be the object, what can you

produce better than the many valuable coarse varieties that have been introduced among us? If fineness of fleece, without any other consideration, the Saxon Merino never will be rivaled. If you desire a flock of good fair sized animals, sheep that will endure our climate, that are able to withstand the sudden changes of weather, with fleeces of fine grade, mutton not of the best quality, and yet palatable, then I contend that the Merinoes are the most profitable breed.

The Paular Merino, or what some term "old fashioned Merino," are the most hardy and most profitable of this breed. There appears to be a general visionary desire in many of the States for crossing the many different breeds of sheep to obtain a new, distinct and valuable variety. As it requires several generations to obtain a new and perfect cross, no breeder can fairly try the experiment by a few crossings. Time and money could be better laid out in improving such breeds at hand as each may admire; by carefully selecting the most perfect bucks for the large and best breeding ewes; and in the mean time if wool be the object, regard should be had as to quality and quantity of fleece; for constitution, size of limb and breadth of carcass; and a good breeder must have milking qualities.

For some years past I have particularly noticed how the coarse breeds of sheep have been "cracked up" in laudatory terms at most of the cattle shows throughout the States, and high premiums awarded, when at the same time mention was scarcely made of the finer breeds, as though they were but secondary creatures in producing materials for the comfort of man. In looking over many of the agricultural periodicals, we find plates of mutton sheep got up with a good finish, but the Merino, or indispensable breeds, are not worthy of a place in their columns.

In my view, the Merinos are the most perfect sheep ever bred among us; and I would as soon think of an amalgamation of the Asiatic, African, or native American, with the Anglo Saxon race, to obtain an improved race of people, as to think of crossing any one of the coarser breeds of sheep upon the perfect Merinoes to obtain a more valuable variety.

Many have crossed the Saxon on the Spanish Merino, but there is scarcely one experimenter that will now claim that he has effected any improvement, but very many will acknowledge that they have suffered a loss. It must be an established fact, that the fleece cannot be improved in fineness except at the expense of carcass, nor the carcass improved by high keep or a cross upon a robust or larger breed, without deterioration in the fleece. The in-and-in system when continued to some extent, will also produce a finer fleece and a more slender constitution, although the stock bucks may be carefully selected. Many old breeders in this State assert that their flocks have improved in fineness, which they attribute almost wholly to the peculiarities of our climate. The same may be said of our grass lands; the herbage is thicker, shorter and finer in general than can be found in distant parts. Our mountainous State may also exult in our freedom from those swamps and stagnant waters, which generate

malaria, and those insects that are so annoying to the cattle and sheep of many other States and Territories.

That every variety of sheep will thrive well in the same latitudes of country, is not to be supposed; and even the best breeds of Merinoes may not succeed in all parts of the United States. It has been effectually proved, that sheep of the finer breeds cannot thrive well in England and Ireland, probably owing in part to the humidity of that climate.

Where breeders are desirous to propagate more of one sex than of the other, *if males*, they may be multiplied by selecting ewes of less vigor, over or under middle age; those that have not arrived to a perfect state, and others that have arrived to maturity and now on the decline, and also feebler ewes of any age; and let in bucks that are healthy and in full prime, say four and five years old, and let them tup no more than five or six each day. The effect will be that more buck than ewe lambs will be generated. The reverse will produce the contrary effect; that is, use young bucks, or old and more feeble ones, with healthy vigorous ewes, from four to six years old, and let the buck remain with the flock while in use, and more females will be found among the lambs than males.

If desirous to propagate a stock of sheep that shall resemble the buck in form, color and fleece, put him out in the day time among the ewes, and keep him from them nights. The lambs thereby will more of them be marked after the sire than there can be found to resemble the female; but if the ewes are covered by night, their offspring will most of them resemble the female. In trying the experiment fairly, the night should be dark, and a marked contrast in the sexes. I have seen it fairly demonstrated by dividing equally a flock of ewes, a dark gummy buck being let into one fold by night and into the other by day. In the two flocks there was a striking difference in color and shape among the lambs. I have also noticed many flocks of lambs that were the offspring from bucks that were tended, that is, only remaining with the ewes an hour or so each day. The lambs produced by them invariably are more even in form and fleece, and mostly resemble the sire. Many careful and distinguished English breeders of neat stock and horses, agree that the male has more influence than the female on the offspring. I think this influence is nothing more nor less, and is effected only by the practice of covering in the day time. A *sympathetic influence* is active in marking the progeny.

Of all animals, perhaps none are more sensitive and sympathetic than the sheep, partaking of the same nature they maintained in the days of Jacob of old. It is recorded that he caused his flocks to be brown, ring-streaked, speckled and spotted, by laying before them rods of different colors at the time of conception. Let a black sheep, say wether, run among a flock of one hundred ewes at the time of cohabiting, and you need not be disappointed if you raise some black lambs. I have had lambs colored like the fox, with a tail more bushy than ordinarily, the end of which whiter than the rest of the fleece; also had them black and white, resembling the skunk; also of a grey-

ish color, with a dark patch about the eyes, resembling the raccoon; but these freaks of nature are seldom lasting; the fleece will change nearly to its natural color after the first clip.

In sheep, the many kinds that now prevail may be attributed partly to *climate*, which acts on the thickness, staple and quality of the fleece, form and stature of the carcass. The coarsest of furs and wool of which I am acquainted, are the production of hot climates, and those of the thick finer qualities, are mostly from the colder regions.

A certain degree of heat, though less than that of the tropics, appears favorable to increase of stature. The effects of different kinds of food upon the animal are also as extensive and as wonderful as those of different climates. The fineness and coarseness of the wool, the firmness and flavor of the flesh, and extent of the stature, are all influenced by the nature of the diet. The South Downs, for instance, are said to have originated from a small hardy race of animals, which by careful attention and high keep for a long succession of years, have perfected a larger race of beautiful animals.

The *manner of life*, also has had an influence in producing the different kinds of sheep, as will be seen by comparing the breeds in Spain, the migratory with the stationary; the Siberian argali, with the sheep which are said to have sprung from it.

But it is probable that a very great part of the more striking distinctions that prevail, and almost all of the subordinate variations occasionally to be met with, are the result of a *morbid and hereditary affection*. At first by accident, or by some cause that we cannot discover, there has been produced an improvement or defect in a particular organ; it is astonishing to behold how readily it is often copied by the generative principle, and how tenaciously it adheres to the future offspring. Hence, hornless sheep and hornless cattle produce an equally hornless offspring. The broad tailed Asiatic sheep yields a progeny with a tail equally monstrous, and often of not less than half a hundred pounds weight.

Some years since I had a cosset lamb which became diseased with the converging strabismus or cross eyes; it was first brought on by a very severe chase it received from a dog, causing great muscular exertion and fright. All of her progeny, down to the third generation, have been marked with cross eyes, not able to discover objects but a few feet around them. Accident seems first to have produced this defect; but the strabismus has been wholly retained in the progeny.

There is a very peculiar variety of sheep described by Col. Humphreys, and which the American naturalists have called from its bowed or elbow legs, *Ovis ancon*, but the common people "the otter breed," from its resemblance to the general form of the otter, and a rumor that it was first produced by an unnatural intercourse beween individuals of the two distinct kinds. So tenaciously has this deformity been preserved, that if a common sheep and Ancon sheep of either sex unite, the young will be either a perfect Ancon, or have no trace of it; and if two are lambed at a time, and one be of one variety and the other of the other, each is found to be perfect in its way, without any amalgamation; therefore it might take several generations before the

defect of bow legs could be improved in this variety, and otherwise retain the original size and features of the Ancon sheep in other particulars.

Paular Merino Buck.

I trust that a picture of a Paular Merino buck may be interesting and acceptable to the readers of this article. It is a favorite breed with me, and is gaining admirers generally throughout the wool growing region of the New-England States. The enclosed picture was taken a few days since from one of my stock bucks, by a good artist, while the fleece is but six months in growth. He sheared last June, thirteen and one-fourth pounds of washed wool, it being his third fleece. His live weight is about one hundred and forty pounds.

ON THE MOST PROFITABLE VARIETY OF SHEEP—ROOT CULTURE.

BY WIGHTMAN CHAPMAN, MIDDLEBURY, VT.

I HAVE raised sheep for twenty years. My flocks have numbered from four to seven hundred sheep, most of the time about five hundred. I have bred the Native, Saxony and Merino sheep. The best breed I have raised, is one-half blood Saxony, the other half Merino. In this opinion I shall not coincide with many distinguished sheep-breeders; but from experience in raising Saxony sheep twelve years, and having tried the above named cross, I am satisfied that they will

yield as great a quantity of wool when they have an equal amount of feed, as any other breed with which I am acquainted, and that of a much better quality; I wish to be understood what kind of Saxony sheep I would have to breed from. Mine were bred from the flocks of Mr. Grant of Walpole, N. H. Twelve years since, we selected one hundred ewes from his valuable flocks. Three years they sheared on an average four pounds of wool per head each year; the fourth year they sheared three pounds fourteen ounces. Their keeping was good hay, with a small allowance of roots from the first of February to the first of May, and good feed in the summer. At the end of the fourth year, they were sold for $800. They were selected entirely for their build, having broad shoulders, short legs and necks, heavy bodies, and were well wooled upon the legs and heads. The bucks, which were imported, we procured at Boston. They were inferior to the ewes in every respect, except finer ess of fleece; and here was where so many with myself failed; for the valuable qualities of the ewes were all sacrificed for a little finer coat; and after different persons had selected from my flock the bucks that were then pronounced best, the more valuable ones were left. The effects of such breeding evidently soon began to show itself in light fleeces and weak constitutions.

I have commenced breeding from the increase of the above named ewes with Merino bucks that have long thick wool, but not so coarse as most Merino sheep we have about here, and have more than realized my expectations; the lambs have heavy fleeces of good quality, and are well built. I have also observed the different crosses that have been made in this town with these bucks and Merino, Saxony and Native ewes; all of which prove that we can get lambs from the Saxony ewes that will shear more wool, than from either of the others. The sire of these bucks was brought from Long Island when one year old; and although he will be 11 years old next spring, is as active and in as good condition as any buck about here, and tups about 150 ewes yearly. His lambs are superior to any other we have with us. He sheared, when in his prime, about eleven pounds. He has been in this town three years; the oldest bucks we have from him are two years old, and sheared last spring from seven to nine pounds, yearlings from five to seven pounds eight ounces. He is supposed to have some Saxony blood, but how much is not known. There are a great variety of other breeds of sheep here; among which are a breed from Wallingsford in this State; they are sometimes called the Paular Merino, but they are not at all similar to the Paular Merinoes I have seen from the flock of Consul Jarvis, being being much larger and coarser. For mutton, they are undoubtedly superior to most breeds we have here; but for wool, I think inferior to many others. The sheep I have seen from the flock of Consul Jarvis, are very nice, having wool of good quality; I think bucks like the one I mentioned as coming from Long-Island, would improve them, and produce as valuable a breed of sheep as could be procured.

Attention to breeding will not make good sheep, if they suffer for

the want of care through our long winters. They should have good sheds to protect them from cold and wet weather. Old sheep should be foddered twice each day; giving them as much as they will eat at 8 o'clock, A. M., and 3 o'clock, P. M. They will do without water if they have plenty of clean snow; roots will promote digestion, and are preferable to grain for either ewes or lambs. The latter should be foddered three times each day, and have water. We have raised mangel wurtzels and sugar beets ever since they were first introduced into this country. We now cultivate the beets in preference to the mangel wurtzels, and usually plant about two acres of beets and carrots, and about one-half acre of ruta bagas. We consider beets to be better than any other feed for fattening cattle, milch cows, working oxen, calves, horses, store and fatting hogs and sheep. We have fatted heifers on beets, that weighed when two years and six months old, 800 pounds, and had 135 pounds of tallow. The beef is much more tender and juicy, and also much sweeter than when fatted with meal. A man in this town fatted a hog which weighed when dressed, 600 pounds; his age was 20 months; his feed was mostly sugar beets, with meal, the last two or three weeks. I am surprised that roots are not more extensively cultivated by our farmers.

TO PREVENT WHEAT WINTER KILLING—CULTURE OF SILK IN MADISON COUNTY—OREGON MULBERRY.

BY THOMAS MELLEN, MADISON.

Much has been said and written on the subject of winter wheat being thrown out of root, by the lifting process of the frost acting on the surface of the ground, and partially and in most cases totally killing the wheat plants of whole fields in this and other sections of the country, where formerly we raised good and heavy crops of wheat, and considered it as sure a crop as any other. And as much inquiry is made as to the cause, and what would be the remedy against such frequent losses, I will take the liberty to state my views and observations on the subject, and also the results of some experiments made at my suggestion. When the country was new we raised good and heavy crops of winter wheat, even on the tops of our highest hills, and where it is since ascertained the soil is thin, and either a subsoil or hardpan is less than a foot from the surface, and yet the wheat was never winter killed.

After the stumps became rotted and our lands cleared of them, and we summer fallowed our pastures for the first time, we invariably had heavy crops of winter or fall sowed wheat, and never in that case had it thrown out by the frost. Nor did the lifting process of the frost show itself on the wheat crop at the second summer fallowing of our pasture lands; but from the third time to this day it has proved in-

jurious, and even distinctive in this region, to fall sown wheat, on all our hill land, and even on all loamy land, however dry or deep the soil. So extensive is the evil, that the attempt to raise a crop of winter wheat in this region, except on a porous and gravelly soil, has for the most part been abandoned.

The question is often asked, what is the reason that we could when the county was new, raise good winter wheat on any of our lands and not suffer by the action of the frost, when now, on our deepest and richest soil of loamy land, it is almost invariably thrown out by the action of that agent? This question, to my mind, is not one of difficult solution. At the time when our country was new, the whole face of the earth was covered with a mold or muck produced from the decayed leaves of the forest, and from the decayed herbage with which the forests abounded. On the hills it was not deep, as much of it was carried into the valleys by freshets from the melting snow, and heavy rains; but sufficient remained to give a vigorous growth to the young wheat plant, and to enable it to expand its roots strongly in it, and to penetrate into the soil below.

This muck or natural topdressing was spongy or porous, and did not hold as much water by absorption, as loam or any other soil, and the frost did not act upon it as it does on loam or clay soils, all of which are more compact. Hence the wheat was never thrown out of root by the action of the frost. Likewise when we first summer fallowed our pasture lands, the construction of our plows was such that we could not plow deep, so as to turn the muck and sod deeply under; and the consequence was, that not only the native mold or muck, but also that produced by the sward, remained on the surface of the soil, or slighly incorporated with it, and was of a loose and porous consistence on which the frost had only a slight action. At the same time, this mold was the very best food to the roots of the wheat plant, not being too strong like stable manure.

Since that time, by the frequent plowing of the land, this mold has been incorporated with the soil, and its vegetating qualities exhausted by frequent cropping, and it now forms a part of the soil, which has become more compact, and a given quantity holding more water by absorption, than the same quantity of mold or muck would, when placed on the surface; and consequently the action of the frost produces a much greater expansion and uplifting, than it can do on mold. Nor are the roots of wheat as much expanded or as strongly set in the soil, as they are where the soil is covered with a coat of rich mold. The question then recurs, can fall sown wheat be successfully raised on old land in the regions where it flourished when the lands were new, if the surface should be covered with muck or mold? I maintain it can, and will give the result of my observations. And first, many years since I knew a farmer in the county of Saratoga to succeed well in cultivating the crop of fall sown wheat, when his neighbors wholly failed and abandoned the crop, by reason of its freezing out. This successful farmer prep red manure from his barn yard, the straw, scrapings of the yard, &c. and put these ingredients into compost heaps. He summer fallowed or

sufficiently plowed his land, from which he had taken a crop, and then smoothed the furrows with the harrow. He then drew out his compost manure, 25 to 30 loads to the acre, and evenly spread it over the surface, sowed his wheat on the same, and then harrowed it in, incorporating the surface of the soil and the manure together. The result was that he always succeeded with his crop of winter wheat, when his neighbors who pursued a different culture failed. His wheat thus treated was never winter killed. After becoming acquainted with this circumstance, I communicated it to some of my friends and neighbors, and at different times some of them made the experiment, and with complete success.

The last experiment of the kind known to me in this neighborhood, was that of my brother two years ago last fall, which was made on a piece of deep, dry and friable loam soil, with a southern exposure. After having finished the plowing, he smoothed the furrows with the harrow on the part he purposed top dressing. He then carried on about 30 loads to the acre of the manure of the yard that had accumulated by bedding abundantly both neat cattle and sheep in the yard the previous winter. It had laid through the summer, and had not been put into compost heaps, which would have been better, but it was pretty well rotted. This was evenly spread over a part of the field, he not having enough to top dress but about one-half of the field. On this he sowed his seed wheat, and at the same time sowed the residue of the field and harrowed the whole in. The wheat that was top dressed had evidently in the fall the most luxuriant growth, but all the field looked well and promising. When the snow disappeared in the spring, the wheat was green and looked well; but during the month of April, thawing and freezing commenced and continued at intervals for a considerable time, interspersed with an occasional snow squall or some rain, sufficient to keep the top of the ground moist and exposed to the action of the frost. The result was, that the wheat on that part of the field not top dressed soon assumed a blanched and dead appearance, while the other part remained comparatively as green as before, and the wheat on the part not top dressed was almost entirely killed, so that he sowed it to spring wheat, while the part that was top dressed was not injured by the frost, but produced a good crop of heavy headed and well filled wheat.

Some years ago accident brought to view another method to prevent the action of frost on the fall sown wheat, and a cheaper preventive than the former, and one, like the other, which I have as yet never known to fail.

The same brother above alluded to had a piece of meadow ground that became swarded with June grass, the other grasses having been principally killed out by the grubs. After mowing it the latter part of June, he plowed it, and dry weather set in and continued, so that the sod, or turf, could not be rotted, though wholly killed. The different plowings and harrowings tore the turf in pieces, and distributed it over the ground, and the fallow had an unsightly appearance. He sowed it to fall wheat, and in harrowing had to follow the harrow,

and frequently to lift a side to disengage it from the accumulated tufts. He had thoughts of gathering the turf and placing it in heaps, fearing that in many places the wheat could not come up through it. I dissuaded him from that, and the wheat came up through the thickest part of it, and it proved a protection against the action of the frost, and yielded a crop of 25 bushels of good wheat to the acre, while there was not another piece of winter wheat on summer fallow in town that year, but was very much injured, and the greater part of the fields wholly killed by the frost, except those on the porous gravel soil of this town. All the fallows, except my brother's, had been plowed earlier, and there had been rain that rotted the turf, and their contents were mixed with the soil, and the fallows in excellent condition, but the wheat on them was lost. The succeeding year a neighbor adjoining, summer fallowed a piece of pasture land. The first plowing was late, after a drouth had set in, and the sod or turf could not be rotted. The result was a good crop of wheat, it escaping winter killing, while all fallows well subdued, had the wheat nearly ruined by freezing out, and many totally so. A similar circumstance occurred about the same time, in an adjoining town. A farmer summer fallowed a piece of land, and an occurrence took place which prevented his finishing the fallow till late in the season for summer fallowing. The consequence was, the turf of the late plowed did not rot, but remained strewed over the ground, whilst the early plowed was well subdued and in excellent condition. The whole was sowed with fall wheat, and the late plowed was protected by the undecomposed turf from the action of the frost, and produced a good crop of wheat; and the part of the field that had been well subdued, was almost entirely killed. This lead this farmer and some of his neighbors to reason correctly on the subject, viz: that the turf scattered over the surface, protected the ground from the frequent surface freezing and thawing, which lifts out the roots of the wheat. The farmer alluded to, and several of his neighbors, have since pursued the course of summer fallowing so late in the season, as to prevent the sod from rotting, which course has always resulted in a good crop of winter wheat; and I have known them sell from five to six hundred bushels of wheat per year to one miller, when those who subdued their fallows by early plowing, lost their crop. In the mode of late fallowing, it is not necessary to plow as deep as for other crops, as on pasture lands there is an accumulation of animal and vegetable matter in and immediately under the sward, which should be mixed by the plow and harrow with the surface soil, and not plowed deeply under, but should remain on, and as near the surface as possible, to take the place, as far as may be, of the native muck that formerly covered the soil, and is not acted upon as severely by the expansive power of the frost as when mixed in the soil by deep plowing; and being on and near the surface, the fibrous roots of the wheat are supplied with food for the plant, and vegetate strongly and vigorously, and strike their roots deep in the soil below, as formerly was the case with wheat sown on new land. The turf spread over the surface, not only prevents the wheat from freezing out, but in the spring a rapid decom-

position takes place, forming a rich mold on the surface, in which the surface roots place themselves, while the solvent parts by rains are carried down into the earth, and supply the deeper roots with food.

In addition to these experiments, a gentleman farmer at or near Skaneateles, some two years ago published in the Genesee Farmer his method of raising winter wheat, and obviating the effects of the frost. His method was to plow so late as to prevent the sod or tufts from rotting; and the result invariably was, he raised a good crop of winter wheat, when his neighbors, who took the ordinary course, lost their wheat crop. This mode of culture, or of topdressing, has not extensively obtained, but in every case known to me, it has succeeded well. But since the introduction of the Italian spring wheat, most farmers in this region depend on that, it being a sure crop, and not requiring as strong or rich a soil as winter wheat, or as any other straw grain.

The culture of silk is attracting an increased attention in this county. A respectable exhibition of raw and sewing silk and cocoons were exhibited at the fair of our County Agricultural Society last fall, and all of an excellent quality; and considerable was raised that was not exhibited, and all who have made the experiment are flattered with the results. We are satisfied that, added to the farming interest, its culture will become lucrative. The Oregon mulberry I continue to cultivate. It endures the rigor of our severe winters without injury, and I am fully satisfied from experience that it is better adapted to the climate of the northern States than any other mulberry tree known. It can be grown into standard trees; its leaves are larger and thicker than the Morus multicaulis, and thicker set on the branches; are a fleshy leaf, containing less woody fibers than other mulberry leaves, and instead of being watery, they abound in a milky juice more largely than any other known mulberry leaf, which milky juice is the substance from which the worms secrete and elaborate the silk. I have fed silk worms on the leaves of this plant five seasons, and also on multicaulis, and others of the most approved varieties, and the result, in all cases, has been that the worms fed on my new plant, have grown equally as well as those fed on any other variety, and have in all cases been the most healthy, and produced firmer and heavier cocoons, which reel remarkably easy, and producing a finer filament than that produced by feeding on other varieties; which is easily seen by comparison, and in all cases possesses a more brilliant lustre than any other specimens I have seen, or can produce from other varieties, and is also remarkably flexible. All good judges who have seen my specimens declare silk to be richer in lustre than any ever seen by them. I therefore feel a confidence in believing that my new plant is the most valuable mulberry tree that has as yet been introduced or known; and if the culture of silk should continue to progress, will eventually become a valuable acquisition to silk culturists in the northern States.

SIZE OF FARMS—EXTERMINATION OF WEEDS—APPLICATION OF CAPITAL.

BY HENRY H. HOPKINS, AUBURN.

WITH respect to the agricultural changes requisite to advance the prosperity our county, I propose three general topics.

The first should be a reduction of the size of our farms. This is no small item, affecting both the interest of the owner and his neighbor. An immoderately large farm, (and there are many in this vicinity,) is a wearisome vexation to its proprietor; he is constantly harassed and perplexed with the thousand directions to which his attention is called; his eye must be over all, and unless he be almost omniscient and omnipresent, many of the "irons he has in the fire" will be "burned." He is obliged to have more hired labor than is profitable under the present depressed state of the country. The improvements on a large farm are merely nominal, and it is impossible many should be made.

He is the slave of slaves, rises early, toils late; yet all this without any profitable returns.

The second, and in my view, the most important item is the necessity of an *united* and persevering effort to subdue the Canada thistle.

To the eradication of this pest of the farmer, scores of plans have been given and adopted, but all have failed of their object. Some may doubt this, but if it be not true, why do we observe this tenfold increase, within a few years past, which even the most casual observer cannot deny.

I would not be understood to say, or even hint, that many of the plans given for the destruction of this weed are not good ones. Far from it. But I do say, that without an united effort, none of those plans will be permanently effectual. What is the use of one man's destroying his thistles, when his neighbor's fields are left to grow white with them? The first wind that blows is just as sure to flood his fields with *thistle blows*, as that night follows day, though their farms be miles apart.

That blossom which the wandering school boy endeavors to catch is bound for some congenial soil, where it alights, and following the common law of nature, springs up and in its turn sends forth blossoms to decorate another man's fields.

Our cool northwest breezes occur in the very season for the carriage of these blows, and it is found they increase faster in this direction than in any other. Lands just cleared of the native forests are in the best state for the introduction of this seed, and from this circumstance many suppose they spring up spontaneously.

Now from these facts, I appeal to the common sense of every farmer, if it be possible to subdue this weed without this united effort.

Let every farmer do his utmost for five years in succession, and I will vouch for the fulfilment of his wishes.

The third point of interest, and one too, which is only applicable to wealthy farmers, regards the right destination of their surplus funds.

These generally have been used in speculation, but had they been devoted to the improvement of their stock and farms, it would have added to the agricultural wealth of this county, to the enjoyment of the owner, and would have given an impetus to agricultural improvements, the beneficial results of which time could only estimate. Let every farmer follow farming instead of money making. Some pinch their farms, (like the miser his sixpence,) till it groans for the want of enriching. Until we see changes in the particulars above enumerated, as well as in others, we need not expect to see those improvements in agriculture which all admit are so desirable.

IRRIGATION AND DRAINING.

BY HOLKHAM.

THERE are few more interesting subjects of inquiry than the changes that have taken place and are yet in progress upon the surface of the globe we inhabit, in order to fit it for the residence of man; the geologist, the moralist, the philosopher, the christian, are alike interested in discovering the train of mutually dependant causes, by which it was made to assume its present condition, and to prepare it for its higher order of denizens. But interesting as these speculative inquiries undoubtedly are, they give place among the practical and utilitarian considerations by which we are surrounded, to the consideration of the means by which men are *now* to sustain themselves, and provide for their wants; and although nothing is more discouraging to the speculative philosopher—the man who loves the truth exclusively for its own sake, than the inquiry "*cui bono*," to what practical good do your researches tend; still his mind has to yield to the reflections that are urged upon him by the immediate and pressing necessities of the thousands of beings whose first object is to live. He should, however, reflect that he is incapable of taking in the whole compass of nature; and that although he may not see it, there may possibly be more value in the act of an ignorant and stupid clown, than in many of his sublime and elevated inquiries. To provide for our wants is the first object of reason, of our instinctive faculties; and while we glory in the advantages of scientific agriculture, and rejoice that chemistry is developing the combinations that promote vegetation; that mineralogy is giving us the materials to constitute productive soils; that physiology is displaying the wonders of organic creations; and that the whole circle of the sciences is revolving for our benefit; we must

yet admit that the manipulations of husbandry will ever continue to be the fountain from whence production flows. "By the sweat of thy face shalt thou eat bread;" and it is of more importance, and requires a higher order of intellect, to direct these energies, to evolve these forces, and adjust them for the accomplishment of good, than to indulge ourselves in the most abstruse speculations and refined inquiries. Men of science too, are so accustomed to look among remote and recondite causes for a solution of phenomena, they are so accustomed among the multiplication of books to *read*, that they scarcely give themselves time to *think;* they forget in this mass of labor, that they have the book of nature open; that they are perpetually invited to "explore the wondrous work,"

"An institute of laws eternal; whose unaltered page
"No time can change, no copier can corrupt."

And thus in tracing the progress of things from the time that the earth was the abode of reptilia, they have passed unnoticed the simple fact, that siccation, or an increase of dryness on its surface, has been exactly proportioned to an increase of the human species, and to the multiplication of their enjoyments. This observation may not apply to arid deserts or to tropical climates, as Egypt or Chili, where rain seldom falls in summer; but even here, drains and canals are necessary to fertility; and had it not been for the simple observation of a slave, all the learning of the stagyrite would scarcely have invented so useful, so simple a machine for conveying off the cause of sterility as a drain. If we trace the history of the changes alluded to, from the time our planet was the abode of the Saurian family, to the period when a higher order of beings assumed a control over it, and vegetation began to give it its present beautiful aspect, we shall find that marine and aquatic animals have gradually disappeared, and their places have been supplied, first by amphibious, and afterwards by more aerified organizations. The same fact is abundantly illustrated in the history of our own race—the gardens of Columella, indeed all Campania, were drained and cultivated until it furnished more for the supply of the neighboring city than any other portion of Italy; now the water stagnates upon the villa of Lucullus; and it is made "a habitation for bitterns and owls." Cæsar describes what are now the most beautiful and highly cultivated regions of the earth as serbonian bogs and impenetrable marshes, in which the objects of his pursuit frequently took refuge. Holland, Zealand, Flanders, England, and even the mountainous districts of Scotland are reclaimed by this simple process of draining from comparative wastes; and while scientific and practical husbandry have combined to establish the principle that dry land is far more productive than wet; while every man of ordinary intelligence or of the slightest observation sees the difference; irrigation is practiced, and draining neglected to an extent that in this country is little less than criminal; nay more, the former is recommended, and often upon high authority recommended by men who can see that in all the changes made by organic upon inorganic matter, from the operation of the coral insect to the labor of mammalia,

the great object of Providence has been to "gather the waters together and let the dry land appear." Upon this simple and primitive truth, the ordinance that preceded the production of vegetable life and the foundation of all good husbandry, the practical man invariably acts, when he wishes to increase his crops, unless he happens to be mislead by authority, influenced by indolence, or prevented by poverty, or unless his land is kept, as it frequently is, under aristocratic institutions, for the amusement and luxurious pleasures of its owner. Thus we frequently see that English lawns and parks are kept in grass for ages; that no plow is suffered to break their velvet surface, no human food to grow upon their plantations; but this depopulating practice is what led for ages to the division of land into arable, meadow and pasture; and is one of the causes that keep the people of England in a state of starvation, while pampered opulence is chasing the fox or the hare over thousands of acres.

It is an unhappy circumstance, that in this country our agricultural publications continue, by countenancing the practice of irrigation, to pander to the prejudices of the ignorant, and minister to the gratification of the indolent. There are none of the practices that an enlightened and improved system has discarded, less worthy of their praise or toleration. It is utterly at variance with their first canon of improvement—a rotation of crops. It produces diseases of various kinds, similar to those of Savannah hammocks and everglades; not only among horses, cattle, sheep and swine—the foot-rot especially, being one of its concomitants, and stagnant water, emphatically "the pestilence that walketh in darkness," because the light of the sun never dispels all the miasma that arises from its noxious vapors—but it produces no greater amount of wretchedness among men and inferior animals, than it does among trees, fruits and vegetables. It is fatal to the life of both, with the exception of coarse and aquatic plants. Irrigation itself is also fatal to every kind of tillage crop, as well as to all our republican habits, and to any thing like an equality of condition—the corner stone of our northern institutions; because there is no more wasteful farming; no more expensive or less productive lands for the labor and expense bestowed upon them, than permanent grass lands or lawns. They may do for gentlemen or millionaires who are unable to devise ways of spending surplus funds; but for men whose living is dependant upon their farm crops, they not only cost abundantly more than they produce, but they take the time and the manure that might be advantageously applied to enrich the residue of the farm and make the whole a garden; they take more than double the manure than cultivated crops, to which it is applied under the surface—because the manure is exposed to all the hot suns and drenching rains that occur during its decomposition; because all the gaseous and volatile substances it contains are thus suffered to escape; and because the land never gets the benefit of plowing in a green crop—one of the most fertilizing improvements of modern times; they encourage the growth of moss, which can only be killed by large quantities of manure on the surface, and of weeds, which

must be taken out by hand or by the spade, instead of being buried by the plow; they also encourage the growth of aquatic plants, rushes, tussocks, and a multitude of other usurpers that cattle will eat when starved to it, but which are not sufficiently nutritious to make them fat, and upon which they must necessarily deteriorate.

The Flemish maxim of "no clover no manure," &c. is reversed under this system, for clover cannot be long maintained upon irrigated or permanent grass lands. And every man who has ever noticed the effect of drouth upon them, must have remarked that it operates with tenfold more force upon lands that are permanently in grass, than upon lands that are seeded anew every three or four years. To render land fertile and profitable, it must be occasionally exposed to *all* the influences of aerial phenomena. It is in vain for Liebig, Chaptal or Davy to furnish in alkalies, acids or excrementitious materials, the food of plants; unless they combine with them the whole range of atmospheric phenomena they can form no chemist's workshop equal to that of nature; and her laboratory is perpetually evolving new forces, and rendering new adjustments to promote vegetation, but not permitting any thing to grow without the aid of her combinations, their particles pervading every organic production, and following every transition of structure until the law of mortality, the condition of existence, has performed its office and destroyed their functions, when they soon become a mass of materials designed to add to the number of living beings, and to increase the amount of sensitive enjoyment under some new and probably more important organization.

Draining, on the other hand, improves every thing to which it has any relation. It renders the land friable and easily pulverized, so that one plowing and much harrowing is frequently saved; it fits it much earlier in the season for a crop; it prevents poaching by the feet of cattle, and enables the farmer to apply his labor at all seasons. No baking by hot sun; no hard clods impervious to atmospheric influence; no freezing out in winter (one of the most serious objections to our climate;) no early frosts to cut off your fall crops. All moves on pleasantly; farming becomes a delightful occupation; and whether the hoe, the harrow or the plow is to be used, all goes on cheerily; men go whistling with their teams, and women singing with their milk pails, the very personification of happiness!

When we look at the efforts of that great and good man, Judge Buel, to promote a thorough system of draining land, and think how *few* men (professing as *many* do, to venerate his memory,) have adopted his counsels, it feels truly discouraging to offer advice to farmers. Book farming is indeed worthless, when men thus refuse all its most valuable admonitions. We know that his reasonings point to the greatest good of the greatest number; that the greater amount of land drained, the greater the number of intelligent beings provided for, and the greater the benefits they mutually confer on each other, and consequently the more elevated their physical and intellectual condition. It is when they are thus made happy, that they see and

appreciate the value of happiness. It is then that the spoils of nature are demanded to increase their comforts; that they are drawn with more or less reluctance from the mine, the forest, the ocean and the air; that improvement follows on improvement; that the arts of life become perfected, and beneficial discoveries that promote a common brotherhood among nations and communities are interchanged; sectional and national jealousies are dispelled; the collisions of intellect minister to his individuality and independence, and bring into active exercise all his higher and nobler faculties. These considerations induce us respectfully to suggest whether it would not be a noble object for a government like that of New-York, designed as it is for the happiness and the increase of her population, to drain the morasses and marshes that disfigure so large an extent of her otherwise productive surface. In the county of Cayuga alone, myriads of human beings might be profitably maintained upon lands that are now the abodes of noxious insects and filthy reptiles, as well as the sources of pestilence and the origin of emigration. The health of the surrounding country would amply repay the expense; the value of the land that is now productive would be trebly enhanced; while that which is unproductive and uninhabitable, under the agency of an active, happy and cheerful people, would probably repay the expense in a single year. If we may make any estimate from the ditching and embanking of the islands in the Delaware, below Philadelphia, a million of dollars expended under the direction of a competent engineer, would do more for New-York than a like sum in any enlargement of her canals.

EDUCATION, AGRICULTURE, Etc.

BY ALEXANDER WALSH.

It has been well and wisely said, "Honor to the man who makes a blade of grass grow where grass grew not before." If this be the just meed of the meritorious individual, should it not be liberally extended to the associated many—to the deserving nation? Honor then to the New-York State Agricultural and Horticultural Society: honor to the State which countenances and sustains it.

"Excelsior" is the motto of our State: independence is the boast of our people. Is this a mockery, or is it a reality? Is our superior excellence to aim no higher than the possession of some *tawdry* bauble; is our boast to reach but to the semiperfection of some minor art calculated to degrade rather than to elevate an aspiring community? More than this is our aim, more than this is our end.

The New York State Agricultural Society is the guardian patron of the arts and sciences generally, but in an especial manner does it devote itself to the most indispensible of all arts, the most compre-

hensive and useful of all sciences, the science more or less of all times, of all nations, and of all people—that of agriculture and its second self, horticulture, including all that can interest the farmer.

Excellence and national independence are perfectly within our own means and our own opportunity. The farmer, seated beneath his own vine and *apple tree*, is the most envied of lords; he is the lord of the soil, the unembarrassed chief of the family-mansion:

> "Far back in the ages,
> The plow with wreaths was crowned;
> The hand of kings and sages
> Entwined the chaplet round."

Some portion of this primitive regard for the cultivators of the soil is now beginning to be revived, but still the general estimation in which our agricultural population is held, is much too low. Their influence, taking into view their numbers and their honorable vocation, is not what it ought to be, in the respective towns and counties of their residence, and in the debates of the senate chamber and hall of legislation. In order that the evils growing out of this state of things may be remedied, and the agricultural interest may be fully and more honorably represented and encouraged, the farmers as a class should give increased attention, not only to those branches of knowledge which relate to their own immediate pursuit, but to *general knowledge*. A great portion of them must be men of liberal, extended, and thorough education. They must not only as a body be more awake to the importance of such education, but more free and openhanded in their means and measures for its attainment and diffusion among themselves.

It is quite time the idea should be exploded, that the mere rudiments of education are all the farmer needs. The sentiment is utterly unsound and pernicious. "Man is the minister and interpreter of nature." So said Lord Bacon. The employment of the farmer brings under his very eye some of the greatest wonders of nature. He is to put forth his agency in aid of those natural processes by which the germ of vegetable life is produced, and all that is wondrous in plants brought to maturity and perfection. Scarcely a branch of natural science but has an intimate relation to the business of agriculture, and peculiar claims upon the attention of the farmer. Nor can any good reason be assigned why he should not have the benefit of full instruction in all the branches of useful learning. Every college and extensive well endowed seminary should have its professorship of agriculture, with grounds for practical experiment. Farmers cannot appropriate a portion of the annual avails of their labor for any object which will yield them richer harvests than education.

Were the entire farming population of the State to awake at once, and fully, to this important subject, and make the efforts which are in their power in relation to it, the benefits, it is believed, would be incalculable. An enhanced value would thus be given to their landed estates, and new security would be given to them for the increase and

perpetuity of their personal and domestic comforts. Indeed the subject is of vital importance to the state and nation, and claims the grave consideration of senators and legislators. Knowledge and virtue are the main pillars of our political fabric. Therefore it is of prime importance that every facility for the attainment of useful knowledge be granted to the farmers, constituting as they do, far the most numerous portion of our population. What means can be adopted for imbuing our agricultural community with a more ardent thirst for such knowledge? And they being aroused to some proper sense of its importance, and prepared to do their part, in what way shall their efforts be encouraged? These are interrogations that deserve general and most profound consideration.

There are certain self-evident principles in relation to agriculture, requiring but moderate capacity for their comprehension; but which are often defeated by avarice or inattention.

1st. No more should be undertaken than can well be performed. This would generally lessen the toil, and in proportion to the toil, render the product greater in amount and better in quality.

2d. The best and soundest seed should in all cases be selected. That which has been bruised by the flail or otherwise injured, should be carefully rejected.

3d. Young animals, especially those under the age of six months, should be well fed; this will stay their appetite throughout their life. The apparent extra expense of high feeding in the beginning, will be amply repaid by the comparative cheapness of future feeding. The animal will look better, be really so, and will, if offered for sale, bring a better price.

4th. Pay proper attention to rotation of crops. Formerly a man cleared his land or broke up a pasture, and continued to crop the soil until it would not pay for cultivation, when it was laid aside as *old field*, and another part of the farm subjected to the same process. Now the whole farm is fitted for crops, and the roots, grains, meadows and pastures, succeed each over the whole. The crops are in this way vastly increased and diversified, the soil of the whole improved and rendered more fertile, and that declension which must follow continued cropping wholly arrested. Science has done this, by proving that what is poison to one plant may be changed into food for another, by change of crop.

Attention to these simple rules, involving no additional expense, and requiring no other than ordinary talent, will greatly advance the early efforts of the farmer.

The liberal rewards offered by the agricultural associations have brought forth the skill and inventive genius of our mechanics, which has furnished many valuable, new, and great improvements to the old and clumsy implements of husbandry.

Farmers should judiciously patronise these improvements, particularly the improved plow.

Horticulture is but a department of agriculture; the principles which govern the one, are in most instances applicable to the other.

It is painfully observable, in how little regard is held the acre constituting the kitchen-garden; yet there are not any two acres on the farm which would yield so large a return, in proportion to the amount of labor and expense, as that derived from the kitchen-garden. The little garden is, in a degree, a miniature or model farm, and much instruction may be derived from it, in the management and distribution of compost, irrigation, &c. &c.

The flower-garden is less an appendage of the farm, but deserves more of regard than is generally bestowed on it. Botany has engaged the ardent study of many eminent men, nor is it a science merely administering to our fancy or amusement; it also administers to health, to wealth, to trade—it is food, medicine and commerce. Flowers rank deservedly among the most lovely productions of the field, the vale and hill; spontaneously sent forth by nature, they advance far towards perfection even without artificial care, leaving little more necessary to our full enjoyment of them, than a judicious selection and collection of them, guarding the exotics against the danger incident to them, and protecting the indigenous against those attacks of adverse seasons to which all are occasionally exposed.

Flowers have excited a great interest in all classes of society; the savage of the wilderness is gratified in decorating his person with the native flowers of the forest; civilization promotes the cultivation of native and exotic flowers.

The flower garden may be regarded as a sacred spot, where poetic and refined feelings are awakened or called into existence. Notice the wonderful creative power which causes the sap to move, the bud to start, the blossom to expand, the astonishing variety of shape and shade of the leaf, the most beautiful tints and the sweetest perfume. The study of nature leads man to an observance of mysterious wonders, "for not a flower expands itself, not a blossom opens its leaves, but speaks to him in language, which, if attended to, will make him a better and a happier man."

"Nor worlds on worlds, in phalanx deep,
Need we to prove that God is here;
The daisy, fresh from winter's sleep,
Tells of his hand in lines so clear.

"For who but HE who arched the skies,
And pour'd the day-spring's living flood,
Wondrous alike in all he tries,
Could rear the daisy's purple bud?"

A strict adherence to antiquated habits has caused no little ill to agriculture. What the youth has learned from his father, and he from his, seems in too many instances, destined to be transmitted as an unaltered heirloom to posterity. Such may be the instinctive impulse of the beaver, but it is quite unworthy of rational man.

On this point it is enough to say, that an agricultural periodical, of which the country produces many, and some excellent ones, would impart information, which, if even partially acted on, would yield the occupier of ten acres of land, ten times the amount of the dollar it would annually cost. The advantage would be proportion-

ally great to the cultivator of an hundred or more acres. It is pleasing to observe that the circulation of agricultural papers is on the increase, and that the consequent improvements in most sections of the State, are gratifying evidences of advanced science and improved taste.

The Agricultural Society of the State has for its design the promotion of agriculture in all its branches and dependancies, the introduction of the most improved implements of husbandry, the collections or importations of the best and rarest plants, fruits, and seeds; the improvement of cattle; the circulation through the press of all useful information; and generally, whatever can subserve the interest of the agriculturist, or elevate the citizen in the gradations of usefulness. The county or local societies are governed by similar objects, although necessarily with less extended views.

In furtherance of the great design, the New-York State Agricultural Society held its second exhibition last September, in the immediate neighborhood of Albany; the show was a magnificent one, the attendance of practical farmers, of scientific agriculturists, of what may be called amateurs, and citizens of various classes, was great beyond any former precedent.

The exhibition of the best breeds of cattle was very extensive. The specimens of ingenuity and the arts, and those generally of the most useful and necessary description, were numerous; and the show of flowers, fruits, and vegetables, rare and valuable.

Contrasted with the two or three acres of ground, and the crowded state of the fairs of the old world, the State Fair stands in proud preeminence. Conceive an enclosure of forty acres, (fully one-third of which was occupied by the animals, &c. of the fair,) laid out with the greatest view to symmetrical order and convenience, with its spacious carriage road and avenues free from obstruction; extensive pens for cattle; fixtures for the exposure of works of art; its noble and extensive tents; its canvass hall, and spacious floral pavilion; the *tout ensemble* can only be conceived by those who saw it.

The rivalry created by this exhibition is not the least of its happy results, giving a fair promise that as the present year far exceeded that of the former, so will the fair of 1843, for which preparations have already commenced, exceed that of 1842.

Lansingburgh, December 15, 1842.

TRANSACTIONS

OF THE

COUNTY AGRICULTURAL SOCIETIES.

In making out this department of the Transactions for the present year, the Executive Committee feel great pleasure in recording the evident advances which an improved agriculture, under the auspices of the County Societies and the fostering care of the State, has made. By a reference to the report of the State Society for the year 1841, it will be seen that reports were received from but nine county societies, while in 1842, about thirty societies have complied, in a greater or less degree, with the law requiring annual reports of their proceedings. In 1841, societies had been organized in only thirty-two counties. In 1842, forty-two counties had such societies, and in thirty-five of these, fairs were held for the exhibition of farm products, implements and animals.

It is difficult to estimate the advantage agriculture has derived, and will continue to derive from these associations, or the impulse which an improved husbandry has received from these numerous fairs and exhibitions. Of the greater favor with which they have been viewed, and the greater numbers who have attended them as observers and competitors, the county reports furnish abundant testimony. Notwithstanding all that has been written on the subject of agriculture, very few comparatively of our farmers are aware of the great capacity of our soils when properly cultivated, or the astonishing improvements that may be effected in animals by skillful selection and breeding. It is only when such examples are brought before them at their annual exhibitions, that they find what has been done; and the idea begins to be firmly impressed on their minds, that what others have so successfully performed, may be done by themselves.

They are able to contrast at a glance the Durhams, Herefords and Devons, with the common breeds of cattle; the Berkshires, Leicesters, &c. with the ordinary and inferior races of pigs; the old fashioned, coarse wooled, scraggy sheep, with the large, fine formed Leicesters and South Downs, and the fine wooled Saxonys and Merinoes; the clean limbed sinewy horse for the road or carriage, and the heavy muscular one for the plow or draft, with the common miserable hacks of the country; and we have never known a man, certainly not a farmer, whose eye did not brighten and his countenance exhibit satisfaction as these evidences of agricultural skill and improvement passed before him.

The reports of the societies furnish striking proofs of usefulness in other respects. The annual fairs and exhibitions constitute a holiday where citizens of all classes and professions meet on common ground to exchange their cordial gratulations and hearty sentiments of good will. The only way in which men can understand each other, know the wants and wishes of all, and properly appreciate the relative position which any one part bears to the whole, is to meet in this way, and freely exchange their views and sentiments on all matters relating to the common welfare. Rivalries and jealousies, which spring up and flourish where seclusion and ignorance prevail, pass rapidly away under the influence of friendly intercourse and intelligent emulation. Great and practical errors, in regard to the social standing and relative importance of large divisions of our citizens, are dissipated, and the true rank and worth of the man, placed beyond cavil or contradiction. Public opinion has been turned into a more healthy channel; new standards by which to estimate men have been erected; unworthy prejudices have been done away, and the farmer has taken his proper rank and standing in society.

From the several reports and papers furnished them, the Executive Committee have prepared the annexed abstract of the Transactions of the County Agricultural Societies for the year 1842.

ALBANY COUNTY AGRICULTURAL SOCIETY.

This Society was organized in 1841, but at too late a period to enable it to hold a Fair that season. The money necessary to enable it to avail itself of the State appropriation, was raised from members

and by subscription, which still remains in its treasury, no Fair having been held in 1842, on account of the Fair of the State Society having been held in this county. The officers of the Society for 1843, are as follows:—Teunis Van Vechten, President, Albany; J. McDonald McIntyre, Oscar Tyler, C. N. Bement, Amos Crary, P. S. Vanderbergh, John Haswell, Abraham Verplanck, Wm. Murphy, Robert S. Lay, and David Conkling, Vice-Presidents; Luther Tucker, Albany, Cor. Sec'y; A. E. Brown, Treasurer; Thomas Hillhouse, Rec. Sec'y; Samuel Cheever, E. P. Prentice, L. G. Ten Eyck, John S. Walsh, and James Wilson, additional members of the Board of Managers.

CAYUGA COUNTY AGRICULTURAL SOCIETY.

FROM this Society no report has been received. It held its second Annual Fair on the 12th and 13th of October. The exhibition of farm stock, implements of husbandry, domestic manufactures, butter, cheese, &c., &c., and the attendance of farmers was such as to show that a deep interest is excited in the affairs of the society, and that its beneficial influences were extensively felt and appreciated. James M. Sherwood was elected President; Wm. Richardson, Rec. Sec'y; Wm. C. Beardsley, Cor. Sec'y; and John B. Dill, Treasurer. These officers all reside at Auburn. One Vice-President, and one member of the Executive Committee, were also appointed for each town in the county. The copies of the "Transactions of the State Agricultural Society," received from the State, were directed to be deposited with the Vice-Presidents in each town, to be loaned out, that all farmers might have the advantage of their perusal.

CHAUTAUQUE COUNTY AGRICULTURAL SOCIETY.

THIS Society was organized on the 12th day of October, 1836. The constitution and by-laws were adopted at a meeting of the Society on the 4th day of January, 1837. It was by the exertions of a few individuals, striving against many discouraging aspects, that the society retained its organization until the passage of the act of May, 1841, when the friends of the society were aided by a general feeling in favor of their efforts, by almost the whole community. Since the passage of the act "for the encouragement of agriculture," the Chautauque County Agricultural Society has been considered by our farmers in an altogether more favorable point of view; and I have reason to believe that the few who first exerted themselves in its behalf, may yet see their most sanguine anticipations fully realized.

The annual fair of the Society was held on the 28th and 29th days of September, 1842, at Westfield. It is estimated that some two thousand persons were present. There was a respectable exhibition of stock and other articles. The plowing match excited much interest, and the whole passed off much to the gratification of the Chautauque farmers, and others who take an interest in their behalf.

The sum of two hundred and eighty-six dollars was distributed for premiums, (with the exception of about nine dollars for expenses, printing, &c.) Sixty-three new members added their names to the list, at one dollar each, which increases the whole number to near two hundred members.

The President of the Society was absent at the time of awarding the premiums, and that clause in the law requiring a certificate from the person receiving the same was not attended to. Consequently it is not in my power to make so full a report as I could wish.

The rearing and fattening of cattle, and the wool growing business, in this county are the objects most to be encouraged for the interests of the agriculturists.

T. B. Campbell,
Pres't. Chau. Co. Ag. Society.

CHEMUNG COUNTY AGRICULTURAL SOCIETY.

From the account of the Fair of this Society, which was held at Fairport in October, the following items are selected: The committee on field crops awarded premiums as follows:

To J. B. Clark, Chemung, for the best acre of Indian Corn—198½ bushels *of ears*. Seed, white flint, eight rowed. The field contained ten acres—had been mowed for the last fifteen years—was broken up about the first of May—planted about the twentieth of May, in usual manner—hoed twice, and harvested on the 17th and 18th of October.

To John W. Wisner, Elmira, for the second best acre of Indian Corn—172½ bushels *of ears*. It was planted on the 13th and 14th of May, on a coarse gravelly soil, after a wheat crop; a heavy ley of clover was plowed under very deep; in the spring, a dressing of twenty loads of manure to the acre; plowed and hoed three times.

To Barnabas Miller, Catharine, for the third best acre of Indian Corn—162 bushels *of ears*. It was planted on the 12th and 13th of May, in rows three feet wide, and drilled from twelve to fifteen inches, two stalks in a hill; soil gravelly loam; had laid to clover two years; plowed under a dressing of ten loads of manure to the acre in the spring; seed soaked, tarred and rolled in plaster. Cultivated and hoed three times; after second hoeing, plastered one-third of lot, one-third mixed ashes and plaster equal parts; on part of the other, put ashes, and part nothing—that plastered, was best, that on which ashes and plaster was applied, next best. Corn, twelve rowed variety.

To Hiram Gray, Elmira, for the best ten acres of wheat—22½

bushels per acre. Raised on new land, a clay loam soil, burned late the previous fall; plowed twice, and sowed 13th of Sept. Variety, white chaff Crate Wheat.

To E. C. Frost, Catharine, for second best ten acres of Wheat—17 bushels per acre. Cultivated in the usual manner. The wheat crop in this county was unusually light, owing to late frosts and drouth.

Premiums were awarded to Wm. Worden, Catharine, for 13 bushels clover seed from four acres, and to Jesse Carpenter, Elmira, for the "best acre of potatoes—806 bushels,* Merino variety."

CLINTON COUNTY AGRICULTURAL SOCIETY.

THE Clinton County Agricultural Society was organized at Plattsburgh, on the 7th August, 1841, a constitution adopted and officers of the society elected.

The first fair was held at Plattsburgh, on the twenty-fifth day of October, 1842, at which time the Society numbered one hundred and twenty-three members. The treasurer reported he had received from private subscriptions ninety-nine dollars, and from the State eighty-four dollars, making in all the sum of $183. At which time the premiums were awarded and paid to the amount of $88.50, leaving a balance on hand of $82.07, appropriated to pay premiums on farms and farm crops of the present year, at our annual meeting on the second Tuesday of January next.

ZEPH. C. PLATT, *Pres't Clinton Co. Ag. Soc.*

Annexed are the reports of the several committees on farms, crops, &c., made at the January meeting:

REPORT OF THE PUBLISHING COMMITTEE.

REPORT OF COMMITTEE FOR PERU.

The committee to view farms and award premiums offered by the Clinton County Agricultural Society for the town of Peru, report:

That they have had the pleasure of viewing but three farms—no others having been offered for premiums.

We first visited the farm of Josiah T. Everest, which is situated about three miles north and west of Peru Village. It contains about sixty-five acres of improved land. In the management of his farm, he has adopted the system of rotation of crops. His practice is to break up in the fall, and sow in the spring a mixed crop of oats, peas and rye;—the next year, manure and hoed crop; and the third or fourth, seed down; then mow three, or at most, four years, and plow again.

* No vouchers are given for this crop, nor statement of the method of cultivation. If such a crop has been grown, the manner in which it was done, ought certainly to be made public.

The farm of Jonathan Battey, is situated two and a half miles south of Peru village. This farm contains about sixty acres of land, all cultivated. Mr. Battey has been in possession but four years; yet it is plain to be seen what a thorough, systematic course of farming may do. We observed that the Canada thistle, which was formerly abundant, had already, to considerable extent, been compelled to give way to clover; and in fact, very few weeds of any kind were to be seen. Order, system and economy, are to be read in every feature of his management. Even his assortment of tools bore ample testimony to the truth of this general remark. His motto is—"A tool for every use, and a use for every tool—a place for every thing, and every thing in its place." We had the pleasure of examining several labor-saving machines of his own invention. Among them was a drill-barrow, adapted to sowing all sorts of garden seeds, field beets, &c., which it does with great precision and admirable effect: a corn planter, drawn by a horse, which saves the labor of several men, and which does the work much better than it can be done by hand; and also a bee-hive, which attracted our particular attention, as being something entirely new, and possessing some important advantages. From the appearance, we concluded it would be impossible for the bees to make any but *sweet* honey in it. Mr. Battey makes a liberal use of clover and plaster; and this practice your committee would earnestly recommend to every farmer.

In our opinion, Jonathan Battey is entitled to the first premium; and to Josiah T. Everest we award the second.

We wound recommend that J. Battey's "statement" be printed.

WILLETS KEESE, *Chairman of Committee.*

REPORT OF COMMITTEE FOR PLATTSBURGH.

The committee appointed to examine Farms in Plattsburgh, respectfully report:

That there were three farms presented for premiums, viz: Mr. Benedict's, Z. C. Platt's, and I. C. Platt's; all which were viewed July 23d, 1842.

Mr. Benedict's farm contains one hundred acres; of which twelve are woodland, twenty-six pasture, five were sown to wheat, twelve to oats, six to buckwheat, two and a half planted with potatoes, one and a half with corn, and the remainder was in grass. On this farm are one hundred and fourteen rods of stone wall, and fifteen balance gates, which, in the view of your committee, are the cheapest and best in use. Manure used on hoed fields. Meadows two years to grass, and one to pasture; then plowed. All crops looked remarkably well, except corn, which was injured by worms. There is a good orchard, and good convenient buildings.

Z. C. Platt's farm contains fifty-one acres, all improved land; of which three acres are pasture, two and a half were planted with corn, two and a half with potatoes, six acres sowed to wheat, and one and a quarter to oats. The crops were injured by worms and a hail-storm. The fences good, consisting of boards, cedar and ash. Garden good.

Fruit—apples, pears, and plums, all in abundance. Buildings all good and very convenient.

I. C. Platt's farm contains one hundred and fifty acres; of which twenty acres are woodland; five acres were sown to wheat; seven acres to barley; five to peas and oats; three planted to corn; four with potatoes, and forty in grass. The planting ground was manured in the spring. The fences are of posts and boards, stone wall, cedar and ash rails, and generally good. Garden good, containing a great variety of table luxuries; and, in fruit, he may well bear the appellation of "Commodore,"—a schedule of its variety and abundance being kindly furnished, is herewith presented.

Your committee respectively award to Edwin Benedict the first premium, and to I. C. Platt the second.

EDWIN BENEDICT,
CHARLES KNAPEN,
SAMUEL CHATTERTON, } *Committee.*

REPORT OF COMMITTEE FOR BEEKMANTOWN.

Dorastus Pardy's farm contains two hundred acres; of which, one hundred and five are cultivated. Meadow, fifty acres; wheat, six acres; oats, ten acres; peas and oats, fifteen acres; barley, six acres; peas, three acres; corn, four acres; rye, four and a half acres; potatoes, six acres; turneps, half an acre, and thirty acres wood and swamp.

James B. Pardy's farm contains two hundred and ten acres. Meadow, fifty-two acres; wheat, three and a half acres; oats, twenty acres; barley, four acres; corn, two and a half acres; potatoes, five and a half acres; turneps, half an acre; beans, half an acre; wood and marsh land, forty acres.

R. O. Barber's farm contains ninety-six acres. Meadow, twenty-four acres; wheat, four acres; oats, fifteen acres; barley, six acres; corn, five acres; potatoes, four and a half acres.

Joseph Stearns' farm contains sixty-four acres. Meadow, thirteen acres; oats, nine acres; corn, five acres; potatoes, five acres; and two acres woodland. The remainder pasture.

There is much credit due to Mr. Stearns for the improvement which he has made upon his farm for the short time that he has occupied it.

Mr. Chatterton's farm contains one hundred and fifteen acres. Meadow, twenty acres; wheat, seven acres; oats, five acres; barley, one acre; corn, six acres; potatoes, three acres; woodland, fifteen acres.

The committee were much pleased with all the farms that we viewed; and it was not without some difficulty that we determined to whom to award the premiums. But as we must make a selection, we give to Mr. R. O. Barber the first premium, and to Mr. James B. Pardy the second.

Z. C. PLATT,
BENJ. L. WOODRUFF,
JAMES B. PARDY. } *Committee.*

The reports from Ausable and Chazy simply state that there was only one farm in each town presented, neither of which was examined.

The above are the only premiums awarded on farms. The committees for the remaining towns making no reports, it was presumed no other farms were offered. This is much to be regretted, as also the very small number of applicants in the towns which were represented. The premiums offered, it is true, afford in a pecuniary sense, but a scanty compensation for the trouble, (if it be regarded such,) of preserving the necessary memoranda, and making out the required "statement." Still it were to be hoped that in this flourishing county, a very large number of intelligent and practical farmers might be found, whose zeal for the promotion of the public good is not to be estimated in dollars and cents; whose co-operation in public measures for such an object, would be promptly and cheerfully rendered, even though it promised no returns by way of private benefit; and doubtless many such there are. Why then were they not out? Are there no more than *thirteen* good farmers in Clinton county? This certainly cannot be. The publishing committee do indeed feel confident that there are several times that number whose farms and farm management would have entitled them to a respectful hearing. And it is to be hoped that in future the number of competitors may be greatly increased. The object of the Society, in this department of its measures, is certainly laudable; and we cannot doubt, that if promptly and efficiently seconded by individual effort, it would prove a means of advancing the private interests of those engaged in it, and of agriculture in general, to a degree hitherto unknown in this county. From the tardiness which has been manifested by farmers generally in reference to this measure of the Society, it would seem that its object has not been fully understood. In agriculture, as in every other pursuit, knowledge gained by practice is a treasure of inestimable worth. Who is there amongst us that would be willing to part with the knowledge thus acquired during a single year, for any consideration. If, then, one year's experience be of so much worth, of what inestimable value is that volume of experience which may be treasured up during an active life of forty or fifty years! But is not the experience of forty practical farmers during a single year, worth as much as that of one during a period of forty years? And why may not farmers, in this "rail-road age," when every thing else "goes by steam," take a hint and apply to their mutual benefit the experience of each other which is already acquired, as well as plod on independently, each in his own way, a period of forty years, to learn a hundredth part as much? It was to open a channel through which this principle might be carried into practical effect—in other words, it was to render the experience of our best practical farmers available to the benefit of others less experienced, that the premiums on farms were offered. It was also with special reference to this same end, that applicants for such premiums were required to render full and explicit statements of their management in conducting their farming operations, and of the results. It is however, to be regretted that

of the statements which have been submitted, some are not sufficiently explicit to render them as serviceable as they might have been; while others were so brief that very little instruction could be derived from them. To these remarks there is *one* exception—as there was *one* such document which fully answered the design of the Society, and which, as it comes from the pen of a scientific and practical farmer, and is believed to contain some useful and interesting matter, will be published. These statements are all preserved, and will be kept on file among the Society's papers, at the office of the recording secretary, where they will at all times be accessible to those who may wish to peruse them. For the satisfaction of those who may not find it convenient to call and examine them for themselves, it may be proper to remark, that so far as these statements go, they all concur in bearing testimony to the correctness of the following propositions, all which are now regarded as established principles in an improved system of American husbandry:

That a rotation of crops is essential to the most economical and profitable cultivation of all soils:

That coarse manures should be applied to hoed crops—always in an unfermented state—and plowed under, or thoroughly incorporated with the soil:

That most soils are improved by fall plowing; and especially clayey or tenacious soils—where it is indispensable, and should always be deep:

That on clayey soils, surface-draining, by plowing in narrow lands, and leaving the "dead-furrows" deep and open, is of essential benefit:

That the mode of tillage should be thorough—it being far better to cultivate a small farm, and do it in such a manner, than to run over more land, in a manner less thorough:

That in sowing grain of all kinds, a liberal use should be made of seed—it being more profitable, and far better for the soil, to raise a crop of grain than a crop of weeds:

That in seeding down grass-lands, a liberal use of clover is essential to the amelioration and improvement of the soil: and,

That gypsum or plaster is of essential service on meadow-lands and on green-sward crops.

The report of the viewing committees, though in general extremely brief, contain some hints worthy of attention.

The report of the committee for *Peru*, furnishes something more than a *hint* for the consideration of those who, for want of a little *order* in the preservation of their tools, are ever running to their neighbor to borrow, because they cannot find their *own;*—as also of those who, regarding the proffered aid of invention and the mechanic arts, in the improvement of our implements of husbandry, as an innovation, remain contented with using the same unwieldy and labor-consuming instruments which their fathers used, and their grand-fathers before them.

In the report of the committee for *Plattsburgh*, the "four hundred and fourteen rods of stone-wall,"—the "fences good,"—by a most

significant silence, portray the beauties of barren fields, half surrounded by old brush-fence and rotten rails—of unruly cattle, and crops half destroyed. The "fifteen gates," forcibly remind one of the amount of labor which is annually lost in taking down and putting up as many "sets of bars," or of the gaps which are left in the wall "*for* bars," but which, "*for the present*," (and often a *durable* present,) are filled up with broken rails. The favorable notice these gentlemen take of the orchards, fruit yards, and gardens, appertaining to the farms they visited, sufficently evinces their high estimation of these departments of a farm establishment, and their taste for the luxuries which they may be made to afford. The catalogue and description of his fruit-trees and fruit, so kindly furnished by I. C. Platt, speak volumes in praise of this veteran farmer's wisdom and good taste, in devoting so much attention to this department of his calling. His example is worthy of imitation; and may it stimulate others who have too much neglected this fruitful source of pleasure and profit, to give it their increased attention. The value of a good kitchen-garden, is not likely to be over-rated. Besides being the most *profitable* portion of the farm, it may be made to contribute more than all the rest to the physical enjoyment of those who partake at the farmer's table. And if to this be added a *fruit-garden*, containing a choice selection of the best varieties adapted to the soil and climate, in thrifty and bearing condition, he may well feel a sort of independence which none others can. He is no longer dependent on foreign climes and foreign trade for the supply of most of his table delicacies. The distressing effects of fluctuation in State and National affairs, may reach to his pocket, but they can hardly extend to his plate; and so far as relates to the supplies of his table, monopolies and embargoes, tariffs and free trade, are all well-nigh the same to him.

We hope this subject will engage the increased attention of the Society. In no other respect are the farmers of this county so far behind their neighbors of other counties as in this. Our orchards are, generally, in a thriftless and decaying state; while comparatively little attention is paid to the rearing of young orchards, or the improvement of the old. The *pear* is equally as well adapted to our climate as the apple, and its excellent qualities are well known;—still, it is almost as rare a thing to see an individual of the species *communis* around the farmer's domicil, as one of the genus *citrus* (or the lemon tribe) within it. The plum, the cherry, and all the smaller fruits, have hitherto shared the same neglect. Some few trees of some of these kinds, and of the common varieties, are usually to be met with in the margin, or some secluded corner of the farmer's garden, where the turf is never broken, and the sprouts are allowed to grow up into a thicket, from which little fruit is obtained, and that of little value; while (with a few honorable exceptions, at the head of which stands the gentleman above mentioned) scores of improved and choice varieties, which might be procured at a trifling expense, and cultivated quite as easy, and which would return more fruit of superior excellence, now remain unnoticed and almost unknown. In

this department, therefore, a wide field for improvement lies open. The necessity is urgent, and the means ample. Let then the farmers of this fertile county awake in this respect to their own interest, and set themselves at once and in earnest about the work of providing for themselves and the objects of their charge, an abundance of these table luxuries. Let them remember *Eden*, and they will no longer regard the employment of horticulture as below the dignity of the "tiller of the soil." Let them but remember its fruits, and its bowers of domestic felicity, and they cannot long remain insensible to the loss they are now deriving to themselves and their families, in point of health, physical enjoyment and domestic happiness, from this, their own miserly neglect; nor can they, as we think, any longer forbear to elevate the science and practice of horticulture to her proper standing in the scale of agricultural pursuits.

We hope the Society will take some further measures with special reference the promotion of this desirable object.

REPORT OF THE COMMITTEE ON CROPS.

After enumerating the list of successful competitors, and the premiums severally awarded, the committee go on to say:

"Gideon Rugar raised from 22 rods of ground 138 bushels of Rutabaga—the largest yield, but too small a quantity of ground to draw the premium.

"Charles C. Knapen raised 26½ bushels of Barley on 76 rods of ground, nearly 60 bushels to the acre. But there is no premium on barley.

"Samuel H. Knapen raised 104½ bushels Potatoes on 39 rods of ground. The largest yield, but too small a quantity of ground to be entitled to the premium.

"The committee would add that the statements presented by the competitors, relating to the expense and mode of cultivation, and the value of the crops, were, with one or two exceptions, deficient in many respects."

The fact alluded to by the committee in the last paragraph, is to be sincerely regretted. It is indeed a fact which is not likely to be too well understood, that by this same means the object of the Society in offering those premiums, has to considerable extent been defeated. The object of the State in making the "appropriation," and the design of this Society in seconding that object and attempting to carry it out, was not to confer private advantages on a few, but to effect an improvement in the state of agriculture generally. When, therefore, an appeal is made to the ambition or the emulation of enterprising individuals, by offering premiums on farms, crops, &c., it is for the purpose of eliciting facts by which others may be convinced of the possibility and the practicability of improvement, and of the high advantages it might afford. It is, in short, to show that some improvements may be made—*what they are—and how to be performed.*

But very few, however, of the statements rendered, have fully answered this design. Still it is satisfactory to observe, that brief as

they generally are, most of them furnish some hints worthy of consideration: and a few of them afford practical illustration highly satisfactory, of certain principles relating to the science of agriculture which are not now generally understood, or if understood, not generally adopted. Two of these papers from the pen of J. Battey—one on the cultivation of the beet, and one on that of oats, carry out so fully the object of the society, and withal possess so much interest, that we feel disposed to give them publicity; and we can but hope that from his example, such as may hereafter enter the list of competitors for such premiums, will the better understand their duty, and the more faithfully perform it. His "statement" respecting the cultivation of his farm will also be found among the papers hereto annexed.

JONA. BATTEY,
J. H. HOLT,
M. K. PLATT,
G. W. PALMER,
} *Publishing Committee.*

MANGEL WURZEL.—MR. BATTEY'S STATEMENT.

To WM. RICKETSON, DAVID R. PARSONS, and CHANCELLOR STEARNS, *Committee chosen by the Executive Committee of the Clinton County Agricultural Society, to award its premiums on field crops:*

The following is my "statement" respecting a crop of Mangel Wurzel, or field beets, which I have raised this season, and which I hereby respectfully present for your consideration in awarding the Society's premiums on that crop.

The patch of ground on which they grew was, when I came in possession, in the spring of 1839, one of the most forbidding portions of my farm—a small field or yard, in one corner of the lot, which appeared to have been marked out *by the rule of rejection*—being separated by 'the garden' on one side and a hog pasture on the other, from the rest of the farm.

The soil, which was naturally a stiff clay, wore the appearance of having been rendered still more compact and of course unproductive, by the "drilling system;" which allows of repeated cropping with scanty manuring; of working the land when wet; of half plowing, half seeding and half hoeing; and of digging out from among the snow and matted weeds, a few small turneps, or a few watery, half grown potatoes, and then leaving the soil at the mercy of chance, till another spring—again to try the strength of another plow-beam—again to become the 'resting place' of a few more seed potatoes, or turnep seeds, or cabbage plants—and so on.

Immediately I determined to reclaim it, or at least to make an effort. I firstly proceeded to take away the old fence, and introduced it into membership with that favored family, the "kitchen garden;" for I have observed that even "old worn out fields" are not insensible of favors conferred; but often, on receiving increased attention, their very countenances indicate fresh hopes.

I then spread on and immediately plowed under, partially air

slacked lime, at the rate of 30 bushels to the acre, together with a moderate quantity of strawy manure, and planted it with potatoes, ruta baga and field beets. Before mid-summer, the soil became so compact that it was with difficulty a hoe could be made to penetrate to the depth of half an inch. The product was light and the prospect of success not very flattering.

Not willing to give it up so, I projected a plan, which, with some slight variation, I have pursued to the present time, and with the most satisfactory result. In this plan, the renovating means consisted mainly in *deep fall plowing*, and *a liberal use of straw*, or other light materials. The straw, by being turned under, constituted a sort of underdrain, by which the surface water was permitted to pass off; thus leaving, during winter, the upper stratum of earth more susceptible to the fertilizing influence of frost. Besides, as a secondary effect, the straw by decomposing and being thoroughly mixed with the soil, has served materially to improve its texture, and eventually to change its character. Late that fall, I went to a pile of wet and mouldy straw, which my predecessor had left at an out barn, and drew to this field as much of it as I thought I could well cover with the plow, and immediately turned it under, allowing the plow to run to the depth of eight inches. I had two boys follow the plow, and with light four-tined forks, draw from the 'land' into the furrow as much straw as would nearly fill it, at the same time walking in the furrow and treading it down—which enabled the plow to cover it all perfectly. The plowing was done in narrow lands, and the *dead furrows* left deep and open.

The following spring it was again plowed six inches deep, and another dressing of straw turned under in like manner as before. It was again planted with the same kind of vegetables as before; only their relative position in the field was inverted. This season, some improvement became apparent, both in the condition of the soil and in the amount of the crop. The ensuing fall and spring, the same treatment of the land was repeated—except that at each time, the plowing was one inch deeper. The crop last year was chiefly mangel wurzel—which proved a very good one—nearly as large for the quantity of ground as the present one.

Preparatory to the crop the present year, the same treatment was again repeated—except that instead of straw, four loads of strawy horse-stable manure were applied in the fall, and in the spring three loads of chip dirt, and one load of hog manure.*

The soil has now become light and friable, and I have omitted the present fall, the application of straw or any straw materials, deeming this part of the process not now necessary.

When the ground was plowed and worke l for the present crop, it was in a proper state as to moisture. The manure was turned under and perfectly covered, the plow running to the depth of about seven inches. It was then thoroughly harrowed and rolled. The object

* By a 'load' of manure or straw, is meant a common wagon-box full, which holds about thirty bushels.

of rolling was to break down all the fine lumps of earth, and to render the surface compact and smooth, in which condition the operation of planting, which was done with a machine, was more conveniently and effectively performed. Besides I am satisfied, both from reason and experience, that the *surface* being left compact and smooth, (provided the ground be dry at the time of rolling, and the roller light, so its effect be not felt much *below* the surface,) is highly beneficial both to the soil and the crop.

The planting was done on the seventh of the sixth month, (June.) It was performed, as I have already stated, with a drill barrow—a machine of my own invention, to the use of which I attribute much of my success in the cultivation of the beet crop.

By this machine, the seed is dropped at any required distace asunder, from four inches to three feet, and deposited *at any desired depth*, the operator being also able, by regulating the "dropper," to deposit *very nearly* a given number of seeds at a time. By the application of a single principle in the construction of the 'coulter' and 'conductor,' the operation of dropping and covering the seed is rendered perfect to a degree not equaled by any other planter I have ever seen. Every seed which passes out of the hopper, is conducted with infallible certainty to the drill made by the coulter, and safely deposited at the bottom of it before a particle of earth can fall in and fill it up. As the machine advances, the earth falls in behind the coulter and fills the drill, and a wheel follows, pressing the soil upon the seed. Planted with this machine, beet seed is quite as sure to vegetate as corn. Every seed, capable of germination by any process, invariably comes, and *it all comes up at very nearly the same time*, a circumstance of much importance, but which never follows hand planting or that of any other machine which has come to my knowledge. And, what may seem incredible, but which is nevertheless a fact, beet seed planted with this machine, comes up in less than half the time usually required for that planted by hand. I always plant my beet seed *dry*, without any preparation, and it has never been longer than five days in coming. By the way, I would remark that I plant all kinds of garden seeds, and even corn, with this machine.

In this instance, the seed was dropped at eight inches asunder in the drills, and from three to four seeds in a place. The drills or rows were about thirty inches apart. At the first weeding the plants were thinned out so as to leave but two in a place, and at the second hoeing, so as to leave but one. They were hoed three times—a horse and corn harrow being used each time.

The quantity of ground is just 40 square rods, or ¼th acre; and the whole expense and value of the crop is as follows:

EXPENSES.

To 4	loads	straw manure, at 2*s* .,	.....	$1 00
To 3	do	chip dirt, do	.....	75
To 1	do	hog-pen manure, at 4*s*.,	.....	50
		Carried forward,	.....	$2 25

Brought forward,		$2 25
Fall plowing, ½ day, man, team, and boy, at 15*s.*,		63
Spring plowing, harrowing, and rolling, man and team half a day, at 12*s.*,		75
Planting with a machine, ¼ day, at 8*s.*,		17
Seed, 1¼ lbs., at 6*s.*,		85
Harrowing 3 times, 2 hours each time—half a day in the whole—man and horse, at 9*s.*,		56
Hoeing first time, man one and a half day, at 6*s.*,		1 13
do second time, man one day, at 6*s.*,		75
do third time, man ½ day, at 6*s.*,		38
Harvesting, man 3 days, at 5*s.*,		1 88
do boy 1 day, at 3*s.*,		37
do horse used occasionally to draw in, say 1 day, [a liberal allowance,] at 3*s.*,		38
Use of land, at $75 an acre,		1 31
Taxes of every description on the land,		08
Total expenses,		$11 49

RECEIPTS.

By 257½ bushels beets, at 10 cents, [one-half the price of potatoes, though worth two-thirds as much for stock,]		$25 75
Beet tops, valued, for cows, at 8*s.*, [a low estimate, being little more than their value plowed in for manure,]		1 00
Total value of crop,		$26 75
Deduct total expenses,		11 49
Nett profit,		$15 26
To the above estimate might be added: For 2 1/8 lbs. beet seed, raised on one corner, at 6*s.*,	1 92	
Harvesting and cleansing the same, half a day, at 5*s.*, deducted,	31	
		1 61
1 bushel early graft apples at 3*s.*, and 2 bushels pie apples at 18 cents, on the tree, the product of a large tree standing on the ground,		75
Making a profit from the land of		$17 62

As my "statement" of this crop *may* come to the knowledge of others than this committee, I cannot well forbear to express my conviction, that the farmers generally, of this county, are yearly sustaining a very great loss, by giving so little attention to this valuable crop. The ruta baga is also a valuable crop. But I am fully satisfied that the beet is not second even to that. While, therefore, I would not discourage the cultivation of the turnep, I would respectfully recommend that of the beet. I consider the mangel wurzel worth at least two-thirds as much as potatoes for wintering stock;

and for milk cows decidedly preferable. The latter increase the quantity, but deteriorate the quality of the milk, while the former improves both. My cows are kept exclusively on *straw*, with a daily allowance of these roots, and their milk certainly holds out well. Even my calves have no better fare; and no where have I seen any in more thriving condition. Another consideration, much in favor of raising the beet, is that it has a favorable effect in ameliorating the soil; and being fed out on the farm, it returns more to the soil than it takes from it. This idea may be new to some; but every one who has but a partial knowledge of vegetable physiology, or the laws which govern the growth of plants, is aware that all exogenous plants, or such as grow by the addition of successive layers to the *outside*, and particularly those having broad and fleshy leaves, imbibe by far the greater portion of nourishment from the atmosphere; while the endogenous, or those which grow by the addition of successive portions on the *inside*, such as the narrow-leaved grasses, and all the cereal grains, derive most from the soil. Hence the correctness of the above remark in favor of the beet, is at once apparent. The same remark may also be applied to the potatoe, but not to the same extent. It is another law in the vegetable economy, quite as satisfactorily ascertained, that the comparative amount of the nutriment derived by the plant from the atmosphere and from the soil, bears some proportion to the relative amount of the surface of the leaves, compared with that of the minute fibres of the roots. Hence the superior advantages of the beet or the turnep in this respect, over the potatoe, cannot fail to be perceived.

I am aware that the beet is generally considered an *uncertain* crop; and probably under the ordinary mode of cultivation it is so. Still, I believe the fault is not in the kind of crop, but in the system of culture. In my experience, the fact is otherwise; no crop I raise, having proved more uniformly successful. And I have no doubt that under an improved system of cultivation, the experience of others would correspond with my own.

If any who have hitherto been skeptical or unsuccessful in raising this crop, should, by these remarks, be induced to make a trial, to such I would say—Prepare your ground by deep and thorough plowing; if the soil is not already rich enough, plow in long or unfermented manure; if it is clayey or wet, make free use of straw, chip dirt, saw dust, or other coarse materials; and if sandy, of clay, and substitute compost for long manure; work the land thoroughly with a many and fine toothed harrow; smooth the surface with a light roller; and having procured a drill-barrow *of the right kind*, regulate it so that it will deposit the seed at a distance of eight or ten inches asunder in the drills, and three-fourths of an inch deep—or, if the weather and the soil are damp—half an inch; or if they are unusually dry, one full inch deep—but never more; and then deposit the seed in drills 30 inches apart; if plenty of seed is at hand, or can be procured, use it freely, nothing doubting. As soon as the plants have acquired a little size, at farthest before they are twelve days old, pass the cultivator or corn harrow through them, and weed them out—leaving only two, or at most

three plants in a place. In ten or twelve days more, repeat the operation; leaving in no instance but one plant in a place. After this, dress them out once or twice more, as circumstances may require; and if, at harvest, your labors are not rewarded by at least *a good crop*, then the expectations of one will be disappointed, whether yours are or not.

JONATHAN BATTEY.

Peru, 12 *mo.* 30*th*, 1842.

CULTURE OF OATS.—MR. BATTEY'S STATEMENT.

The following is my "statement" respecting a crop of *Oats*, which I raised this season, and which I respectfully present for your consideration in awarding the Society's premiums on that crop.

From a field of green-sward oats, containing seven acres, I measured off at the time of harvest, a rectangle of precisely 160 square rods, or one acre of ground.

The oats on this acre were then cut, and set up in the field. They were then drawn to the barn, and mowed away on a scaffold, where they remained undisturbed, except by rats and other vermin, (by which they were considerably damaged) until recently; when they were threshed, and the grain measured and weighed, the product being as follows:

By measure,..... $57\frac{7}{8}$ bushels.
By weight,..... .... $66\frac{1}{16}$ do

Being 35 lbs. 5 oz., very nearly, per bushel.

I am well aware that this is no very extraordinary yield. Probably more bushels per acre have been grown in this county the present season, and may come to the knowledge of the committee. Still it may not be certain that the largest yield is always the most profitable. On the contrary, it is well known that in many cases of "mammoth" yields which have been reported, the increased expense of the crop, arising from a lavish and injudicious application of labor and other means, and a proper allowance for the natural productiveness and previous good management of the soil being deducted, the nett profit has been found to be far less than that of some other more moderate yields.

It may be just to say, that in this case, neither the parcel of ground selected, nor the field of which it was a part, was cultivated with any view to a premium, but was in all respects managed in accordance with my general system of farming. In this system, a *rotation of crops* is a fundamental principle. And for reasons which I cannot state here, *oats* are selected for the first or green-sward crop.

The soil of this field is a deep, strong, clay loam, the surface inclining slightly to the east. It had been "in grass" three years—the whole seven acres having produced on an avarage,

In the year 1839, $1\frac{4}{8}$ths tons hay per acre.
In the year 1840, $1\frac{1}{2}$ do do
And in 1841, $1\frac{3}{4}$ do do

Plaster was applied at the rate of 100 lbs. per acre, in 1839, and in 1841, and again at the same rate the present season—one land, of two rods in width, through the whole, being omitted for experiment, which chanced to pass through this acre. No other manure has been applied, either the present season or at any time since it was last plowed. The crop in 1838, was part wheat and part oats, when the land was seeded with clover and timothy. Although considerable of the clover had now 'run out,' yet its effect in ameliorating the soil and in rendering the sod easy of decomposition, has been quite apparent, and is rendered still more so by a comparison of this with an adjacent field of green-sward oats *on a timothy and red top sod.* The soil and the mode of cultivation of the two fields were similar; and I know no reason why, had the sod been the same in kind, the product should not have been equal—except, however, that the kind of oats was not the same. But, having ascertained by a nicely conducted experiment, the relative productiveness of the two kinds, and making the proper allowance for their difference in this respect, a balance of one-fifth the whole crop on the clover sod remains in its favor. And a still greater difference was found to exist, after the crops had been taken off, in the condition of the sod —that of clover and timothy, having been reduced by fermentation to a friable condition, while that of timothy and red top remained tough and unyielding.

The acre now presented for premium was plowed, in connection with the rest of the field, about the 1st of 5th month, (May.) On the 14th, the oats were sown and harrowed in; the field being harrowed twice over (with a new and improved harrow, which does at least twice the execution of a good common harrow,) and lapping half its width each time—the ground having also been prepared for the reception of the seed, by harrowing it over three times in the same manner,—firstly, lengthwise of the furrow,—secondly, diagonally, or from corner to corner,—and thirdly, at right-angles with the last. I never harrow at right angles with the furrow sooner than the fourth time, as I find that harrowing in the manner above described, has not so great a tendency to turn up the sod. The weather was fair, and the ground in as good condition for being worked as could be desired. Two days afterwards the land was rolled, and about the same time the next month it was plastered, excepting a strip reserved as above mentioned, for experiment. The kind of oats sowed, is a variety which has been produced by mixing, in equal proportions, our common oats with the barley oats, and sowing the product of this mixture from year to year, until the distinctive character of the English oat is no longer visible, and a variety is produced, not essentially differing in appearance from the common oat —a kind, by the way, which I prefer above all others I have yet tried, as they are much heavier than the common oat, and will produce more bushels, by measure, than any other kind with which I am acquainted. Besides, they are certainly fully equal, if not superior to any other, in the ability of standing erect in the field.

With the whole of the field of which this acre is a part, as, in-

deed, with every other on my farm, an accurate account of expenses has been kept. The treatment of every part was alike, and the growth so nearly equal, that I was in doubt whether to make a selection, or to take the whole field. One-seventh of the whole expense till the time of harvest, being therefore taken for this one acre, the aggregate expense of the crop is as follows:

EXPENSES.

To plowing, 1 man and 1 horse $\frac{4}{5}$ths day, at 12*s*.....	$0 96
Harrowing, 1 boy, 1 pair horses $\frac{1}{4}$ths day, 12*s*.....	1 18
Rolling, one boy, one pair horses, $\frac{3}{5}$ths day, 12*s*.....	0 17
Seed oats, 3$\frac{8}{7}$th bushels by measure, at 4*s*.....	1 93
Sowing do., man $\frac{1}{7}$th day, at 8*s*.....	0 06
Plaster, worth 4*s*.....	0 50
Sowing do., man $\frac{1}{7}$th day at 8*s*.....	0 06
Cradling, man half day, at 8*s*.....	0 50
Raking and binding, man half day at 8*s*.....	0 50
Setting up, man $\frac{1}{4}$th day at 8*s*.....	0 13
Drawing in, two men, one team, $\frac{1}{4}$th day at 24*s*.....	0 43
Raking scatters, man and horse, $\frac{1}{2}$th day, at 11*s*.....	0 11
Drawing in scatters,.....	0 06
Threshing done at one tenth,.....	2 31
Use of land at $50 per acre,.....	3 50
Taxes of every description on land,.....	0 21
Total expenses of crop,.....	$12 61

RECEIPTS.

By 66 $\frac{1}{7}$th bushels oats at 35 cents, the price paid at the mills at harvest time,.....	$23 12
198 bundles straw, worth to feed out, 2 cents, ...	3 96
100 lbs. scatters, not threshed, worth for fodder as much as hay,.....	0 35
Total value of crop,.....	$27 43
	12 61
Nett profit,.....	$14 82

This, to be sure, is not a large profit for an acre of "*premium oats.*" But then it should be remembered that I have allowed for the use of the land, the interest of its cost, though purchased at a time when oats sold at 3*s*. 6*d*. wheat at 14*s*., and other produce in proportion; also, that labor and seed cost about the same. So that if the market price of oats had now borne a just proportion to the expense of raising the crop, as compared with former years, the footing would have shown an additional profit of about $5.78; which, added to the above, would make the nett profit $20.96, which is nearly double the whole expense of the crop.

If it be asked, to what cause or causes I attribute my success in raising this crop? I answer, to *several.*

Firstly: *The soil had not become so far reduced by repeated mowings, as to render plowing, with reference to present profit, by any means indispensable,* as the crop of hay cut last year sufficiently shows. The roots of the grass composing the sod were still vigorous and full of juice—a condition highly favorable to their entering readily into a state of decomposition.

Secondly: *The sward consisted in considerable proportion of clover,* which enters more readily into fermentation than any of the narrow leaved grasses. Hence the decomposition of the sod took effect in season to benefit the immediate crop, both by furnishing a supply of vegetable aliment, necessary to the growth and perfection of the crop, or, as some would have it, the necessary stimuli to the organs of the growing plants; and also by imparting to the soil a certain degree of heat from fermentation, which served materially to keep it light, dry and warm. This last is a consideration of great importance in the cultivation of clayey or tenacious soils.

Thirdly: *The plowing was deferred until near the time of sowing, or till the grass was beginning to start*—so the juice or sap was in active circulation—another condition highly favorable to immediate decomposition.

Fourthly: *The plowing was emphatically well done.* The furrow-slice was not entirely inverted, but left at an angle of about 30 degrees to the horizontal; and so perfectly was the operation of plowing performed, that I believe I should not be far out of the way in saying, that not a foot of turf was left, either not *cut,* or not *turned over.*

Fifthly: *The quantity of seed used was liberal, and the time of sowing especially favorable to the production of a valuable crop*—being early enough to allow the grain to fill well, and yet late enough to ensure a luxuriant growth—and,

Sixthly: *The ground, at the time of sowing, was in good condition as to moisture—being neither too wet nor too dry; and the whole operation of getting in the crop was performed in a thorough, and, if not scientific, a workmanlike manner.*

In the first place, the ground was harrowed before sowing, until the surface was rendered mellow and very even. I never sow upon the furrow; as, in that case, a portion of the seed is deposited at considerable depth, while some other portions remain at or near the surface. The consequence frequently is, especially in wet seasons, that much of the seed is entirely lost. When this result does not happen, the seed comes up at unequal times; those plants which get the earliest start, shade and retard the growth of those which are later; and thus the later portion of the crop never amounts to much, except to occasion the farmer no inconsiderable trouble in curing his crop; or, if the whole be suffered to stand until all has become ripe, to lessen, very considerably, the value of that portion which ripened first.

In casting the seed, I was very particular to distribute it with an impartial hand; so that every foot of ground might receive its just

proportion. This operation is one of so much importance, that I never choose to trust it to another, when I *can* perform it myself, although he be considered a workman at the business.

The use of the roller, as a finishing process in the "getting in" of all kinds of grain, I consider to be of very great advantage. In my method of getting it in, the grain is left near the surface; and the roller, by compressing the soil on and around the seed, serves to render the speedy and simultaneous germination of almost every grain of it, comparatively certain. Even that which happens to remain at the surface, under this treatment, seldom fails to grow, except in a very dry time. I am well aware that the use of the roller on heavy clay soils, *in a wet state*, is highly injurious to the land. But it is equally certain, that to work the land at all at such a time, is also injurious. And hence, I think that he who keeps this important principle in view, and manages accordingly, will seldom find an occasion when he will need to dispense with the use of the roller.

The plaster probably did some good; but it was sowed too late, and its effect on the crop was not very considerable, as proved by the experiment.

Such are some of the more prominent causes, which, in my estimation, have had a favorable effect in the production of this crop. That some of my brother farmers may be incited to inquiry—that they may be led to entertain more liberal and sounder views relating to the science of agriculture, than some now do—and, eventually, to the adoption of an improved system of farming, by which those and similar means may be rendered still more effective in promoting their own and the public good, is the only object of these remarks.

All which is respectfully submitted.

JONATHAN BATTEY.

Peru, 12th mo. 30th, 1842.

MR. BATTEY'S FARM REPORT.

To WILLETS KEESE, ELISHA ALLEN *and* GORDON T. THOMAS, *committee chosen to award the premiums offered by the Clinton County Agricultural Society on Farms for the year* 1842.

The undersigned, having signified his wish to have his farm considered with reference to such premium, and the same having been examined, now presents the following as his statement respecting it.

The size of the farm is 60½ acres. Of this, $1\frac{6}{8}$ acres are uncultivated, and $1\frac{2}{8}$ acres in the highway; which leaves of cultivated land 57 acres.

This farm consists of several small lots of land, which until within within a few years, composed three several establishments; two of which were occupied by inn-keepers, and one by a mechanic. The soil is a deep clay loam, resting on a subsoil of clay and sand variously combined, in some places the sand predominating, but generally the clay. Naturally the soil is very productive; but from bad eco-

nomy on the part of some who have occupied it, some portions are now far less so, than otherwise they might have been. I do not say that all my predecessors on this farm were bad, or even poor farmers. Of the management of any of them, I had no personal knowledge; but observing, when I came into possession, that *the depth of tilth was generally shallow*, I could from this circumstance alone infer that the general previous management had not been either scientific or "thorough-going." Some fields had been plowed too much, and others too little; some had been plowed and highly manured until the land had become filled with thistles and other weeds; and others had been plowed without manuring until they had become very thistly and much worn; and nearly all wore the appearance of having been repeatedly plowed and worked when too wet. The opportunity for improvement, therefore, which in these respects existed, early engaged my attention; and hence a course of treatment was adopted with these several fields, as nearly the reverse of that which had effected those results as circumstances would admit. This treatment, however, is in accordance with, and constitutes a part of my general system of farming; which, while it embraces the means of restoring to the soil the qualities lost or impaired by injudicious treatment, extends also much farther, and contemplates as its leading object, an *unlimited and constantly progressive improvement of the soil.*

The division of my farm into fields is not such as I should prefer. In such a division the size of the fields would be nearly equal, and the number of such fields into which the farm should be divided, would be just once, twice, or some even multiple of the number of years embraced in each period of rotation of crops; in which case the number of acres annually broken up, or the quantity of ground annually appropriated to any given crop, might always be the same. But from the circumstance of several previous owners—and that of the intersection of public roads, such a division of this farm cannot well be made. By the circumstances just alluded to, my farm is now divided into five principal lots; availing myself of this primary division, I have "*Lots*" A, B, C, D and E. These are subdivided into "*Fields*," and numbered 1, 2, 3, and so on. This farm contains no woodland. The $1\frac{6}{7}$ acres however above referred to as uncultivated, is covered with a sapling growth, which has sprouted up where the timber has recently been cut off.

No part of the farm is used exclusively for pasture. My stock is small, and I hire it pastured off the farm till after haying—except my team, which is "kept up." The coarse fodder has all been used on the farm. Of the hay, from fifteen to twenty tons annually have been used, and the remainder sold. This last, however, is a practice which I would by no means recommend; and which I intend to discontinue as soon as I can, without too much outlay, sufficiently increase my stock. For the two first years, the loss of manure occasioned by the sale of a part of the hay, was more than compensated by the use on my own land of coarse fodder, raised on an adjoining farm, of which I then held a lease. Since that time, or for two seasons past, I have had access to no such replenishing means from off

the farm—although I have still continued to sell some hay. It may be remarked, however, that even under the disadvantages of this practice, I have by the aid of an improved system of cultivation, been able fully to maintain, and even to some extent, to improve the fertility of the soil. I must nevertheless enter my protest against the practice, as wholly indefensible, except perhaps on strong and rich soils, naturally adapted to grass for a short period, or to a very limited extent; and then only on the plea of necessity.

Having alluded to my system of cultivation or farm management, it will perhaps, be proper to make some exposition of its general character. This I do with the greater willingness, because I apprehend it embraces some principles relating to the *science* or the *economy* of agriculture which are not now so generally applied in practice, as they should be. In almost every other calling, whether of mechanical or professional life, the advantages of SYSTEM appear to be well understood; while in that of farming, its advantages appear to be little known, and still less regarded. This fact had elicited my attention previously to the time when I engaged in my present occupation. From several years' experience in another kind of business, in which this simple principle was very extensively and most satisfactorily carried out in practice, as well as from general observation and reflection, I had become so thoroughly convinced of its *general* utility, that I could not well conceive why it should not be equally as serviceable to the farmer as to the mechanic or the professional man. When, therefore, I passed by the farmer's fields whose meadows had not been plowed for a quarter of a century, and whose pastures were overgrown with moss and mulleins; whose once fertile wheat fields had become sterile rye fields, or been given up to buckwheat or thistles, or whose corn and potatoe crops had gained the "title" of the fields respectively on which they grew, "by possession;" when I saw his barn-yard manure drenching in the summer rains, its soluble properties washing away into the road, and its volatile passing off into the atmosphere; or when I saw his stock in the spring roving over his fields and poaching up his meadows, in search of a scanty morsel which the barn and granary did not then afford, I could but say to myself, "*Here is a man who has no* SYSTEM."

Again, when I passed by the habitation of one whose fields betokened some approach to system in his plans—but whofor want of *method* in their execution was apt to be behind hand in his work, or to neglect some portions of it altogether; whose crops were half destroyed by his cattle, because the fences were not "put up" in the spring; whose mowers spent half their time at the grindstone because the stones were not picked off the meadow early in the season; whose fire-wood was to be got up by piecemeal amid the hurry of farm work, because it was not done in winter; or whose sons were kept out of school, because his work was so behind hand that he could not spare them; I could but say to myself, "*This man knows not how much he loses for want of a little* METHOD."

I scarcely need say that from such lessons, I derived some useful hints, which, when I came to take upon myself the occupation of farm-

ing, became of much service; or to add that I at least attempted to pursue a better course. In marking out that course, I had special reference to these four cardinal principles—all of which it was intended to embrace: *System, method, order* and *economy*. How far I succeeded is not for me to say. To reduce therefore the whole routine of my farm management and farming operations to one uniform system, in which the several parts should be adjusted according to a given rule, was my first design. This rule, or the principles of economy adopted as such, was that which allows the greatest amount of immediate profit from the least expenditure of means—at the same time securing the moderate, but certain and constantly progressive improvement of the soil. In the application of this principle, reference must of course be had to various relative circumstances, such as the natural quality, previous management, and present condition of the soil; the available means likely to be at command in carrying the system into effect; the proximity and peculiarities of the market, and the necessity which may or may not exist, for the appropriation of the nett proceeds to the liquidation of debts, or to other foreign purposes, &c. That in all these respects I have been entirely successful, is not presumed. Error of judgment and discrimination in adapting means to a required end have undoubtedly occurred. This admission, however, does not affect the general principles on which the system is based. So far as it relates to the science of agriculture, my system makes no pretension to originality; it develops no new principle of agricultural science; but simply adopts such as are already ascertained. Some of the more important or leading features of my system are the following:

A systematic rotation of crops.—In such rotation the selection of crops and their disposition with reference to each other, should be judicious, and properly adapted to the soil. In the course which I have adopted, the

First—Or greensward crop, is *Oats*—on a recently inverted sod to which plaster is applied, but no other manure.

Second—Corn, potatoes or other roots. To this crop is applied all the manures raised on the farm, in an unfermented state; spread on and plowed under in the spring. Plaster and ashes, leached or unleached, are also applied to the hill.

Third—Wheat, without plaster or any other manure.

Fourth—Oats, seeded with clover and timothy.

Fifth, sixth and seventh—Grass, to which plaster is annually applied, at from 50 to 100 pounds to the acre.

Next in importance to a rotation of crops, as pertaining especially to the permanent improvement of the soil, are

Surface Draining, effected by plowing in narrow lands, and always leaving the "dead furrows" deep and clear; and

Increasing the depth of the tilth; by late and deep fall plowing, combined with a free use of sand, refuse straw, leaves of forest trees, chip dirt, saw dust, or other strawy or ligneous materials.

To the above may be added as features of this system scarcely less

important, though referring more directly or exclusively to the attainment of present profit, than to the improvement of the soil:

A very liberal use of seed in sowing all kinds of grain and in seeding down to grass.

A "thorough going" mode of operation in plowing, in getting in crops, and in the subsequent culture.

The use of labor saving implements and machines.

Economy in the appropriation of labor and of every other producing means—and

Method—By which the application of these means may be most advantageously affected.

The former of these two last mentioned principles clearly inculcates the utility of instituting experiments, to prove the comparative advantages of different kinds of crops, or of the different varieties of the same kind, or of the different modes of treatment employed in the cultivation of the same crop, and accordingly this practice constitutes a distinct feature of my system. That kind of experience which every farmer ordinarily acquires, without the formality of direct experiment, is certainly of much value. It is indeed sufficient, or it should be, to correct many of the grosser errors of his management; but it is also certain, that many small errors may still exist, which this kind of experience is wholly inadequate to detect.

For example, there are some kinds of potatoes so nearly equal in quality and productiveness, that many farmers plant either one or the other, as best suits their convenience; while one plants this kind only and another only that. So also in respect to the cultivation—some plant in hills and some in drills; some plant the tubers whole, others in "setts," and others still the "seed end" only; while many others find so little difference in the comparative results, that either mode is adopted, as fancy or circumstance at the time suggest. Now it cannot be that all these modes of cultivation, or different kinds of seed, are equally good. The difference in any given instance may be small, and yet it may be sufficient to effect quite materially the nett profits accruing from the crop. But these or similar remarks will also apply to almost every other crop; and hence, these "small differences" may amount in the aggregate to a fearful drawback on the farmer's gains. For such a result I know of no other remedy than the one just proposed; and even this can be of no service except it be judiciously applied. Hundreds of such experiments which have been attempted have turned out total failures, simply because of imperfection in the experiments themselves. To be of any possible service, such experiments must be both *correctly designed* and *accurately conducted.* A want of unity in the design, is the more common cause of failure, and hence the liabilty of erring on this hand requires a double guard.

In my own practice, it is made an invariable rule, that in all experiments the two rival parties shall enjoy equality of circumstances, or unity of condition, in every respect excepting that only on which the competition depends. To illustrate by example, if I wished

to ascertain the comparative value of two kinds of wheat, I should not sow then in two adjoining fields, because that, however nearly the two fields might resemble each other in respect to the quality and condition of the soil, there might still exist a difference in this respect not appreciable to the eye, and yet sufficient to affect the result. For the same reason I would not sow them side and side merely, even in the same field; but alternately in narrow strips—3, 5, or 7 in number, of exactly equal width, in which case, if there was any variation in the quality of the soil, such variation would be equally divided between the two kinds, according to the number of strips of each. If one kind was soaked in brine, or subjected to any other preparatory process, the other should be also. Both should be sowed and harrowed in at the same time and in the same manner. If the roller were used on one it should be on both. In short all the circumstances should be equal excepting only the difference between the two kinds of wheat.

That experiments conducted in accordance with the foregoing rule, may be relied upon as substantially correct, cannot as I conceive admit a doubt. Of their practical utility I am no less thoroughly convinced; and I may add, that what in this matter philosophy suggested, experience has thus far gone to prove. During four successive seasons I have instituted some twenty or thirty such experiments, most of which have proved successful, though several have been defeated by the intervention of unforeseen and accidental causes, and I can now say that the advantages I have derived from this source have far exceeded my most sanguine expectations. By a single experiment between two varieties of oats, I have the present season detected a loss of which I should otherwise have had no certain knowledge, and indeed no conception approaching nearly to the truth. This experiment proved to a demonstration, that in two fields of oats containing 11 acres, a clear loss was sustained by the use of the least profitable variety of some $55.07, which is nearly double the whole amount of nett profits realized.

Another feature of my general system consists in keeping a farm account and a farm journal.

In the former an accurate account is kept with every field and crop, in which a regular daily entry is made of every item of expense, and at harvest of the amount, and the then market value of the crops. In the latter is preserved memoranda of all the most important circumstances, in any way relating to my farming operations.

In these I have at the end of the year a record of experience, which remaining at all times accessible, I find of very great service, as it points out both what management has been attended with failure, and what with success; and instructs me to avoid the one and pursue the other.

This practice, it is true, occupies a little time. It occupies far less however than many would suppose. If in the farmer's general system a proper distribution of his time be made between his simply manual, and his intellectual operations; or in other words, if in that system, suitable provisions be made for the discharge of this and si-

milar duties, this objection loses most of its importance; and when the advantages resulting from the practice, become fully understood and appreciated, it vanishes entirely. But there must be such provision, and there must be *method* in the execution.

By the aid of these I have found no difficulty in carrying this measure into practical effect, with very little *loss of time* to any other department of my business; and this loss is fully made up in the *increased attention* which the practice naturally excites. By adopting a convenient method of keeping the books, and by appropriating to this purpose, one quarter or one half an hour systematically at the close of each day, I find the process both simple and convenient, and the practice highly useful and entertaining. It should also be observed that in the same connection, after reviewing my farming operations during the day, and noting my errors in management, or whatever may have been particularly successful, my plans for operation during the succeeding day are to be made out. The result is, that labor is much more economically applied, and to much better effect.

Such are some of the more prominent features of the system I have adopted. That it possesses some defects is highly probable; and they may be numerous. Of its comparative merits, however, I must be allowed to say, that I entertain no doubt; but of the faithfulness with which its leading principles have been carried out in practice, it becomes me not to speak. Its results as developed in my farming operations during the season past, are partially exhibited in the synopsis and accompanying remarks, given on the opposite page.

It should be remarked that in this synopsis, the statement of expenses with each crop, includes rent or use of the land, taxes, plaster and every other kind of manure, seed and cultivation, and in short, every item of expense incurred in raising the crop. The statement of receipts, exhibits the total market value of the crop at the time of harvest. A detailed statement of the several items of expenses, and the amount as well as the value of the crop, were submitted to the Society. But as these are suppressed in the publication, it should be stated here, that in estimating the value of labor, five shillings were allowed per day for a man, during the latter part of autumn and the early part of spring; six shillings during the latter part of spring, or until haying, and during the early part of autumn; and eight shillings in haying and harvest. Six shillings a day were allowed for a two horse team at fall plowing, and eight shillings at "spring's work," and in haying and harvest; board in all cases included. Manure was valued at from two to four shillings a load, according to the quality,—expense of getting out included; and a common waggon box full, which holds about 30 bushels, was called a load. For the use of the land, I allowed the interest of from fifty to one hundred dollars an acre, according to the quality and condition of the soil. In estimating the amount of hay, ample allowance was intended to be made for shrinkage in the mow. The amount was not ascertained by weighing it; but was estimated by sight, as each load left the field, and immediately entered in my pocket memo-

Lot.	Field.	Size.	DESCRIPTION AND CROP.	Expenses	Receipts.	Profit.
	No.	Acres.				
A	1	¼	*Grass plot and fruit yard*,	$4 98	$13 45	$8 27
"	2	3½	*Meadow*—two years in grass, poorly seeded, worn, containing a few small apple trees,	21 90	49 91	28 01
B	1	½	*Garden and root yard*—much improved by deep fall plowing and refuse straw,	31 36	57 80	26 44
"	2	2¼	*Meadow*—part three years in grass, part new seeded, seed took poorly—condition good—a barn inclusive,	14 20	20 38	6 18
"	3	7	*Oats*—on greensward—sod of clover and timothy—condition good,	86 93	171 20	84 27
"	4	2	*Potatoes*—on do. do. not manured,	39 91	69 84	29 93
"	5	1	*Oats*—on do. sowed late—other circumstances all the same as No. 3,	12 15	17 92	5 77
"	6	2	*Meadow*—new seeded with clover and timothy,	12 23	25 75	13 52
C	1	6	*Wheat*—on land prepared for corn and potatoes, for which the wheat was substituted on account of backwardness of season,	97 83	100 00	2 17
"	2	4 9/10	*Meadow*—part never plowed—all needs plowing,	28 07	48 17	20 10
D	1	½	*Tenant house and lot*,	11 85	24 00	12 15
"	2	7⅕	*Oats*—potatoe variety, on timothy and red top sod—containing a few apple and other fruit trees,	88 78	121 90	33 12
E	1	½	*Potatoe patch*—containg a pool of water,	17 06	19 35	2 29
"	2	3	*Oats*—potatoe variety—on old ground—highly manured last year—very thistly,	42 09	55 25	13 16
"	3	10	*Meadow*—new seeded with clover and timothy—contains a small orchard,	70 58	143 41	72 83
"	4	6	*Meadow*—several years in grass,	37 22	75 29	38 07
Cul. land		57	Meadow, 29 a. Wheat, 6 a. Oats, 19 a. Potatoes, 2 a. Garden, &c., 1 a.	$617 14	$1013 62	396 48

randum. In 1839, my estimates made in this way, proved on weighing the hay the next spring, to have over rated the quantity, about one ton in forty; in 1840, I under rated one ton in thirty-four; last year I succeeded still better. I have therefore some confidence that my estimates the present season are not very far from correct. In estimating the value of produce, wheat was valued at eight shillings, oats at thirty-five cts., hay at seven dollars, and potatoes assorted at twenty cts., the market prices at the time of harvest; and other produce in proportion.

By an examination of the preceding table, it will be seen that some of the crops afforded a very handsome profit, while others did little more than to merely "come out even." But such wide differences cannot have existed without the agency of special causes adapted to produce such results. And hence the crops of both these classes and the circumstances attending, require a passing notice.

The oats in field *No.* 3, *lot B.* were a good crop. The yield was large, being over 60 bushels to the acre, while the expenses of cultivation were only medium. The result was a fair profit of some $12 to the acre. The circumstances which are supposed to have had a favorable effect in the production of this crop, are set forth in a statement already submitted to the Society, respecting a single acre selected from this field and presented for premium, and they need not be repeated here.

No. 5, *Lot B.* was until the present season a part of the same field with No. 3. The quality and condition of the soil in the two fields are therefore similar, as also the mode and expense of cultivation. The time of sowing, however, was not the same, No. 5 being sowed 12 days later than No. 3, which was all that *too* late. Besides, the seed was not sown so evenly in No. 5, by reason of a strong and gusty wind, and the variety of oats was not exactly the same, though very nearly similar. The yield in this field was, however, only 44 bushels, or a little more than two-thirds as much as in the other; while the nett profit was less than half as much, or $5.77. For this difference I know no other reasons than those already mentioned. Doubtless the small difference in the variety of oats had a trifling influence on the result, and the unequal distribution of the seed in one case, still more; but probably the difference in the times of sowing was a more efficient cause of disparity in the results, than both the others. Here then is at least 50 per cent of the nett profit which might have been realized, absolutely lost by mismanagement, by simply being a little behind hand.

The oats in field *No.* 2, *lot D.* was also a greensward crop. The sod was composed of red top and timothy; it was seeded with the latter some five years since, which had now, to considerable extent, "run out." The soil of this field was *naturally* good; in this respect it was not inferior to that of any other field on my farm. But the management in the previous cultivation had not all been the best. One essential error consisted in using no clover in seeding down. Besides, there must have been some others of considerable importance in their effect upon the soil, otherwise the timothy would not so soon,

and to so great extent have disappeared. This field had been in grass some five years, which though quite too long, was insufficient on this soil, otherwise properly managed, to have produced the last mentioned result. The kind of oats sowed was that variety called here the Potatoe Oat, and the quantity sowed to the acre four bushels. The sowing was done on the 30th of 4th month, (April,) and immediately afterward plaster was applied at the rate of 100 lbs. to the acre. The yield of grain was quite moderate, about 33½ bushels per acre; the whole value of the crop, straw included, amounting per acre to some $13.70. The whole expenses of the crop were somewhat less per acre than in either of the preceding fields; being only some $11.27, but this difference resulted from the smaller growth of straw, which considerably reduced the expense of harvesting. This leaves a profit of barely $2.42 per acre, or about one-fifth as much as that produced by No. 3, of lot B. As this statement of the profit does not agree with the above table, it should be remarked here, that the additional profit therein accredited to the field, resulted from the product of apple and other fruit trees, which the field contained. This last estimate is therefore correct, so far as relates merely to the crop of oats.

A difference so striking in the comparative profits on two fields of the same crop—the same season—and on the same kind of soil, must have been produced by causes equally conspicuous and decisive in their character; and which may fairly be presumed to involve some general principles of practical importance. For this reason I feel disposed to offer some further remarks in exposition of the circumstances connected with the cultivation of this crop. As has been already remarked, the soil was strong and *naturally* productive, and the sowing was done in proper season; also the ground was in good condition when worked; the plowing, and indeed the whole process of getting in the crop, was done up in as correct and thorough a manner as that of any other field on my farm. It may therefore, very pertinently be asked, why I have not realized a larger yield. I can assign two reasons and two only. But with me, these are sufficient.

Firstly:—*The sod was of such a kind, as will not the most speedily enter into a state of fermentation.* The mode of tillage, and the season, were especially favorable to the desired result—but such a result did not ensue. Had the sod been composed in whole, or in part of clover, or had the grass roots which did compose it been young and vigorous, and full of sap, instead of being old, dried up and decaying, a very different result might have been expected. As it was, decomposition had but just commenced, when the crop was taken off. In my opinion, this circumstance alone, was sufficient to account for a loss of at least one-third the amount of the crop, which might otherwise have been realized. This principle is one, which by farmers generally, is either overlooked or sadly disregarded; although it may as I conceive, be doubted whether any one principle in the science of agriculture of equal importance is more readily apprehended, or better established than this. He who, to save the expense of re-seeding his land, suffers his meadows to remain in grass much after the sward

has passed the period of its highest strength and vigor, cannot, as I think, be aware how much he is losing by his mistake. He loses more every year in his crop of grass, than would be sufficient to purchase all the seed he wants; (which by the way, he ought to *raise;*) and when the time at last comes round that the "meadow *must* be broken up," his greensward crop, unless highly manured, is but a scanty remuneration for his labor and seed; the sod remains tough and unchanged, and the land must be cropped and cropped to *subdue it;* until at length not only the sod, but the *soil* is subdued, and rendered unfit for seeding down, or for profitable tillage. Its lost fertility must now be restored; and to this end, it is manured and cropped, and manured and cropped again, until the crop of weeds and thistles becomes sufficiently abundant, to fill the owner's largest wishes, when it must be "*seeded down.*" But it is *thinly* seeded, or the seed does not take well; or it is smothered by the weeds; so the first crop of grass is a crop of thistles, and the succeeding ones but little else; till at length the ground becomes so solid, that thistles will not grow—when the more hardy grasses "come in," and the field once more gets to bearing a *fine* crop of still finer hay. This I am certain is no fancy sketch, having taken it from real life. But it may be asked what has all this to do with your crop of oats? Certainly nothing directly, but indirectly much; as it represents the incapability of the soil in this field to produce a *heavy* greensward, crop and the previous management by which this incapacity may have been induced.

But I proposed to offer two reasons for this not having been a larger crop. And *secondly*, then,

The kind of oats was not the most productive. Had I been as well acquainted with it as I now am, before sowing last spring, I should not then have sowed a single bushel of it. I had raised of it only a single season. Being introduced to my notice by a friend of mine, who by the way is not apt to be so deceived by appearances, I took it "upon trust" to be what *he* had supposed it to be, "a little better kind than any other." And to make the most of what seed I was unfortunate enough to obtain, I sowed six bushels by weight, or about five by measure, on something more than three acres of ground.

The growth of straw was good; but the yield of grain, on threshing, came far short of what I had expected, and I began to fear that all was not right. But as I had no *proof* in the case, having no other kind of oats in the same field, and especially as I did not *know* but the *thin seeding* might have been the sole cause of my disappointment, I determined to sow it at least another season, and give it a fair trial. This I have now done; and although perfectly satisfied myself, the *proof* shall be given, that others may judge for themselves.

For this experiment, I selected a portion of "Field No. 3," "Lot B," where, from the previous crops of hay, I knew the condition and quality of the soil to be very nearly uniform. I then sowed a strip just two rods wide and some twenty long, with Potatoe Oats, and another strip exactly as wide and long at the side of it, with just the same quantity of seed of a common variety. And lest there might exist a slight difference in the condition of the soil, too small to have been percei-

ved in previous crops, yet sufficient to affect the result in this experiment, I sowed on the opposite side of the potatoe oats, another strip, with the common variety, of the same dimensions and using the same amount of seed. At harvest, the products from the two strips of the common variety were united—and this combined product and that of the other variety, carefully mowed away by themselves. Subsequently, they were threshed and the two products of grain separately weighed. The result was, that one-half the combined products of the common oats, compared with the product of the potatoe oats, as four hundred and twenty-three to three hundred and four, or nearly as four and one-fifth to three. Another circumstance of some importance which should be mentioned, is that my potatoe oats were all very *smutty*, while the other kind was not. And as I observed that every field of potatoe oats in the neighborhood, which I saw, was also smutty, I concluded that this difficulty is common to this kind of oats. But this kind of oats may not be smutty *every season*, and hence so great a comparative loss might not in every instance be realized. The above experiment, is nevertheless decisive. I had of the Potatoe variety in three different fields. In all, the relative proportion of smutty to perfect heads, was the same—which I ascertained by *count* to be as one to four—deducting this from the difference shown in the experiment, a balance still remains of $\frac{4}{4}\frac{3}{5}$, that is to say, if every smutty head had been a fertile one, the latter variety would still have fallen short, by one bushel in every ten produced by the other kind. So that he who sows the new variety, *must* expect to lose one in every ten, or three in every thirty, or five in every fifty bushels of his whole crop; which, taken from the nett profit, makes a difference certainly worth regarding; and he *may*, and *more probably will realize* the full amount of $1\frac{1}{2}$ in every $4\frac{1}{2}$ or of 12 in every 42 bushels lost—which is precisely the rate of loss I have sustained by this means in the present crop. The whole loss being $103\frac{1}{2}$ bushels, and amounting in value to..... $36 17

Adding to this $\frac{1}{4}$ a low estimate for the loss sustained by reason of the kind and condition of the sward, we have a still greater amount of some $122\frac{1}{2}$ bushels, amounting in value to..... 42 81

The assumed loss from both sources, my own mismanagement, and that of my predecessor, being..... 78 98

which compared with $19.18, the nett profit realized is certainly no very trifling sum.

It may to some appear singular that I have been thus minute in detailing the circumstances of this apparently unsuccessful crop. My only object has been to draw the attention of others to the *principles* involved; and although it is not quite so agreeable to expose one's own errors and mistakes as to give an account of our more successful efforts; yet from a conviction that far greater practical benefit is often derived from an intelligent review of unsuccessful operations and their results, than of those which are attended with greater success, I could not well forbear to make the exposition.

The crop of oats on field No. 2, lot E, though a fair one, was far less than it should have been. The soil was capable of producing a larger crop than either of the preceding, whereas it amounted to only forty-five bushels to the acre. This field had been under the plow for several years, and hence had become very thistly.

Preparatory to the present crop, the ground was plowed the fall previous, and again in the spring, when the field was harrowed and sowed with potatoe oats, at the rate of four bushels to the acre, except a small portion of it, which was seeded at the rate of half that quantity, for experiment. The oats were thoroughly harrowed in and rolled, and to make thorough work with the lumpy places, it was harrowed and rolled again. The land was also seeded with herdsgrass, at the rate of thirteen quarts, clean seed, to the acre, and the seed harrowed in with the oats. In seeding this field, I omitted clover so that I might have the timothy clear, to save seed from hereafter. This however, was a departure from my general practice, as the use of clover in seeding grass lands, constitutes an important principle in my system of farming.

The experiment above alluded to, was instituted with a view to ascertain the comparative advantages of using much or little seed, in sowing oats. The process was simply this; in sowing, I left three alternate lands near the middle of the field, with just half the usual quantity of seed, or at the rate of two bushels to the acre. At harvest, one swath from the center of each of these three lands was saved, and the three united; also, one swath from the center of each of four other lands, alternating with these three and seeded at the rate of four bushels to the acre, was secured and the four being united, the two parcels were securely mowed away by themselves and afterwards threshed, and the products weighed. The result was as follows:

Three swaths at 2 bushels per acre, produced 575 lbs. of oats, weighing per bushel,.....	41	lbs.
Four swaths at 4 bushels per acre, produced 900 lbs. of oats, weighing per bushel,.....	42	lbs.
Or, dividing the former amount by 3, and the latter by 4, the product of		
One swath seeded at 2 bushels, was	191⅔	lbs.
One swath seeded at 4 bushels, was	225	lbs.
making a difference of	33⅓	lbs.

Allowing then, 40 bushels an acre to be an average yield of oats, (and I think no farmer on good soil ought to feel satisfied with his management until his average yield exceed that estimate by at least ten bushels,) the foregoing experiment proves that, if the common rate of seeding be two bushels to the acre, an addition of two more bushels in seeding, will produce an addition to the amount of the crop, of about 7 bushels to the acre, which, deducting the increased expense of seed, leaves a clear gain of five bushels to the acre. But there are other advantages still resulting from the heavier seeding. One is, that the straw being shorter, finer and firmer, is worth nearly

twice as much for fodder as that of the lighter seeding, and is much less apt to lodge or rust. Another is, that it springs up and immediately covers the earth with a mantle of dense foliage, by reason of which the growth of weeds is almost entirely prevented.

I am aware that this experiment does not prove that four bushels to the acre is precisely the right quantity, but, it does prove what it attempted to prove, that heavy seeding is better than light seeding, and that for strong land in good condition, four bushels is at least better than two.

The profit allowed in the foregoing synopsis is correct as relates to the field, but to find the nett value of the crop, the expense for grass seed must be deducted, which would leave $16.88 as the nett value of the crop of oats, or $5.63 per acre. Had I sowed my common variety of oats in this field instead of the potatoe oats, the value of the crop would have been $76.88 instead of $55.25, leaving a profit of $38.51, and the amount of the crop 188 bushels, or 62⅔ bushels to the acre on an average.

The crop was materially injured by the thistles, and the expense of harvesting considerably increased by the same means. But the injury from this source was far less than if the quantity of seed used had been much smaller, and the mode of cultivation less thorough. As it was, the oats sprang up and covered the ground so soon, and continued to grow so rapidly, that the thistles had altogether a hard time in getting started, and having so much the disadvantage they were kept in the "back ground," or rather in the "shade" all the way up, or until the oats had attained their full height, when a small portion of the thistles succeeded in peeping out their heads. Had it not been for the prevalence of this pest in the soil, and my own misfortune in obtaining that kind of oats, I have no doubt I might have realized 75 bushels or more to the acre. And I am equally certain that had it been seeded at the usual rate, and had the crop been got in in the usual "half way" method, the crop would have proved a failure. A neighbor of mine—whose management is somewhat different—and who could but express his wonder and surprise when I was getting in this crop at so much "needless and useless expense," as he considered it, afterwards acknowledged, frankly and voluntarily, to its good effect, saying that he never saw so fine a field of oats growing, as they were. Coming from such a source, I accepted this as rather a high compliment to the superiority of my system.

The crop of wheat on field No. 1, lot C. affords a practical illustration of the advantages of keeping farm accounts. The yield was fair, being 15 bushels to the acre, and yet the nett profit does not exceed 37 cents to the acre.

This field was broken up last year, a moderate dressing of half rotten straw from piles left two years before, (not foddered out,) with some twelve or fifteen loads strawy horse stable manure, being turned under, and planted with corn. It had been mowed for several years, or until the soil had become much reduced, the crop of hay being small. The sod from its age, and the materials of which it was composed, was especially solid and tough, and by no means adapted to

enter readily into a state of fermentation. Besides, the season proved particularly unfavorable, and the result was that neither the sod nor the materials turned under, had undergone much change. Of course the crop was not large. To secure the more effectual decomposition of the sod, I concluded to plant it again the present season, and with this expectation I gave it another dressing of strawy manure, and prepared the ground for planting. But owing to the backwardness of the season, and the situation of the field, which was low and flat, the planting was deferred until it had become so late that I feared to risk a corn crop, when I sowed it with wheat.

The long manure applied the present season, was undoubtedly of little or no service to the crop. It probably increased the growth of straw, but at the same time induced a greater tendency to rust, and very possibly diminished, to some extent, the yield of grain. Its application to this crop, however, as will be remembered, was not the result of system or intention, but of circumstances wholly accidental.

The wheat was sowed on the 20th of 5th month, (May). Previously to sowing, the ground was harrowed till the surface was rendered even—a preparatory process which I consider of no small consequence to the crop. I am aware that many farmers regard this practice as altogether useless, and involving needless expense. But I would almost as soon think of planting corn on greensward, *without plowing*, as of sowing any kind of grain on the furrow as it is left by the plow. For my opinion on this subject, I have, as I think, some very good reasons; but as most of them are given in another paper which has already been presented to the Society on the cultivation of a crop of oats, I need not repeat them here.

The variety of wheat sown, was the Tea or China wheat, and the quantity, two bushels to the acre. The seed was sown dry—without having been subject to any washing or other preparatory process. After sowing, the ground was harrowed and rolled; and as it had become "lumpy" in some places, and the lumps were not yet broken down, it was harrowed and rolled again. After the wheat was up, the most of the field was plastered, partly with a view to benefit the crop, but chiefly for the sake of experiment. The result, however, showed no effect from the plaster. The growth of straw was good. Standing thick, it did not grow very tall, nor lodge. But unfortunately, during the time of its filling, the weather was exceedingly wet and warm, and the crop was somewhat injured by rust. As this kind of wheat has very justly acquired the character of withstanding the rust better than other varieties, it is just to say that other fields in the neighborhood, sowed with *other* varieties, and ripening at the same time, were far more seriously injured, and some of them comparatively *destroyed.*

The fly that works in the head, vulgarly called the Weevil, which nearly ruined an adjoining crop belonging to my neighbor, and which was sowed ten or twelve days earlier, did not affect this at all. It is to avoid this enemy, that I sow my wheat so late.

It should be remarked that the wheat has not all been threshed,

yet having kept account of the number of bundles harvested, and having ascertained by threshing and measuring a considerable part of the product, the number of bundles required to yield a bushel, it is believed that the following estimate of the yield cannot be far from correct. The same remark would apply to my estimate of the amount of a few other crops. In every instance, however, I have been at the pains of obtaining similar data, and equally satisfactory, with that on which my estimate is founded in the present instance.

Another consideration remains. The manure, which constitutes a large proportion of the expense, was applied with a view of another crop, and as it was probably injurious rather than beneficial to the wheat, this item of expense ought to be deducted and placed to the debit of farm account general, as a loss sustained by mismanagement, but chargeable to "stock account," rather than to any particular crop.

This would leave a balance to the whole field of $27.92.

My *potatoe crop* was not large, but for a greensward crop, without manure, and especially for this season, it was comparatively good. It should be remarked, however, that the raising of a crop of potatoes or any hoed crop *without manure* is a departure from my general system. In this instance it was the result of circumstances rather than design. The kind of potatoes which I planted is the "*Mercer.*"

Having ascertained, by nicely conducted experiments, for three successive seasons, that they are more profitable on my land than any other variety I have raised, I now plant no other. The Rohan, it is true, will produce more bushels; the comparative yield of these two varieties, in those experiments, being, on an average, about as five to four. But the Rohan, though not so bad a potatoe as sometimes represented, is not good enough for my table, neither will they sell here for table use. To raise for stock, the Rohan would undoubtedly be the most profitable. But for this purpose I raise neither, having found the beet still better. The difference, in point of productiveness, between the Mercer and English White, or between the former and the "Scribner" potatoe, has proved in favor of the former, though the difference is not very large. There is also a difference in point of quality in favor of the same kind, which is very considerable, as the quantity of starch contained in the Mercer exceeds that contained in either of the other varieties mentioned, by ten to twelve per cent. In this respect the Mercer is not excelled even by the pinkeye or the biscuit potatoe, while it far exceeds either in productiveness.

The potatoes in this field were planted in hills, the rows going both ways. This mode I now prefer to planting in drills. I once supposed that the latter mode was preferable; but from four successive experiments, instituted in as many succeeding years, I have been induced to abandon that mode entirely; the increased amount produced in drills, having in no instance, compensated for the increased expense of cultivation.

I have also instituted, and repeated under various circumstances,

experiments to ascertain the comparative advantages of planting the potatoe in *setts* or the whole tuber, and of using much or little seed. The result of all these experiments has been uniform, and in favor of selecting to plant, such tubers and such only, as the farmer's wife would select for his table; of cutting each into from four to six setts, care being taken as much as may be to avoid dividing the eyes, and of planting from six to eight of these pieces in a hill.

This season I hoed my potatoes but twice—though I prefer hoeing three times—the first time as soon as the plants are fairly out of the ground, the second about ten days later, and the last time or hilling, just before the roots begin to sett. I use a horse each time; with a cultivator or corn harrow the two first times, and a light plow the last, going both ways each time.

In hilling, I am particular that the hills be left large and flat, or hollowing on the surface, rather than high and pointed. The ground having been very thoroughly harrowed, the rows one way were marked out with a light plow—making a furrow about 2 inches deep; in the bottom of which, the seed was deposited without the addition of plaster or any kind of manure. The planting was done on the 28th of 5th month. After the plants made their appearance, and before the first hoeing, plaster was applied at the rate of about 75 lbs to the acre; and after the first hoeing, a composition of plaster and leached ashes, at the rate of 50 lbs. of the former and 4½ bushels of the latter to the acre. In the application of this compound, I tried two experiments; one, to prove the advantage to the crop, derived from the use of the ashes; and one to prove the effect of the plaster applied last. The result of which was, that the plaster last applied did no good whatever, and that the ashes increased the amount of the crop $\frac{1}{13}$ over and above what it would have been, had not the ashes been used.

In addition to what appears above, I have built nearly 100 rods of fence during the past season; 75 rods of it of posts and boards, and the remainder of cedar rails. I have also made some improvements in and around some of my buildings. But as such expenditures add to the value of the real estate, just the amount of their cost, they have been omitted.

There was also in the spring a trifling expense incurred in repairing fences, which properly might have been deducted from the nett profits of "farm account general," as made out above, but then I have omitted also to give credit for some 1,200 seedling fruit trees, the growth of the present season which ought properly to have been credited, and which at their present value, according to the wholesale nursery prices, would have amounted, after deducting the expense of cultivation, to some twenty dollars, a fraction of which would be sufficient to offset against the repairs alluded to. I have also incurred some expense in improving the quality of the fruit by grafting my orchard. But this also, being an improvement, is entered in "stock account;" and hence need not be noticed in account with the farm.

It will be noticed that I have given no credit for the products of

the dairy, of the pork made, or of the sale or increase of stock. The reason is obvious. I have reported all my land, with a very small and unimportant exception, as being cultivated, which leaves me no pasture land. Of course I have no such necessity as commonly exists, of having a part of the products of my field "*animalized*," before their amount can be estimated or their value known.

It may also be remarked, that I devoted considerable attention to the extirpation of kale, white daisy and other foul weeds, for which purpose every field on my farm was twice gone over, excepting, however, one meadow, where the white daisy has the entire ascendancy. The whole expense of this was nine dollars and twenty-five cents, which being regarded as an '*improvement*' is entered in stock account, and omitted in account with my crops.

In conclusion, I would say that my object in writing out this lengthy "statement," has not been so much to benefit others by a knowledge of my own experience, as to draw out the experience of others and to cite the attention of my brother farmers generally to the benefits which might be derived from a more extended interchange of their professional experience either in this way or by some other systematic means; and although I had no reason to suppose that the facts communicated or the views offered would exert much influence on the opinions or practices of any, still, considering that they might come to the notice of some who like myself are young and inexperienced, I deemed it better to be a little too specific than by omitting any circumstances which might have had a bearing on the results given to lead any to make wrong inferences, or eventually to the adoption of practical error.

With this apology, and a hope that I shall have the pleasure at the coming anniversary of our Society, of hearing from many other better and more experienced farmers than myself, the foregoing is respectfully submitted. JONATHAN BATTEY.

Peru, 1st month 7th, 1843.

COLUMBIA COUNTY AGRICULTURAL SOCIETY.

THERE is a well organized and efficient Society in this county, but no report has been received from it. Its Fair was held at Hudson on the 10th of Oct. and was well attended both by competitors and observers. On the ground were 38 cows, 13 bulls, 18 bucks, 25 ewes, 17 hogs, 3 steers, 16 yokes of working oxen, and 16 horses, making 162 quadrupeds in all. Then there were plows and harrows, cultivators and fanning mills, root and straw cutters, pumps and hay presses, quilts and comforters, carpets and toilet covers, wax flowers and lace veils, bee hives and cocoons, sewing silk and fine linen, huge beets and potatoes, fine apples and pears, butter and cheese; of the former article one hundred and seventeen lots were exhibited, together with almost every other article produced or used on the farm.

CORTLAND COUNTY AGRICULTURAL SOCIETY.

ACCOMPANYING this, I send the published account of the doings of the Cortland County Agricultural Society the current year. The annual meeting of the Society was held yesterday. William Randall of Cortland Village, was chosen President, and George T. Taylor, of Homer, Corresponding Secretary.

The meeting was well attended, and the members generally seemed gratified with the success which had attended their operations the past season. At the Fair in October, there was a splendid display of cattle, and there is a spirited competition among our *actual* farmers, (the real bone and sinew of the country,) which promises the best results.

In consequence of holding our annual meeting earlier than usual to enable the proper reports to be made in pursuance of the statute, some of our most efficient members were absent, having mistaken the time. This was the case with several members of experimental committees who had prepared reports on the several duties assigned them.

DAN HIBBARD.

Cortland Village, 12th mo. 8th, 1842.

DUTCHESS COUNTY AGRICULTURAL SOCIETY.

Poughkeepsie, Dec. 29, 1842.

THE Dutchess County Agricultural Society was organized October 16th, 1841. It now has 258 members. We have received by voluntary subscription, $333—from the State, $157. We have paid out for premiums $289. We held our first annual fair on the 5th and 6th days of October last—the attendance was large, and the number and quality of the stock exhibited was much beyond our expectations. The variety of samples of roots, vegetables, fruits, flowers, seeds, &c. exhibited, were good, and told that the farmers of old Dutchess are awake to the important subject of agriculture. There was a good display of farming implements, many of which are well calculated to save labor and expense, and to facilitate our labors.

The greatest yield of wheat offered for competition, was 149⅞ bushels from five acres—of corn, 403 bushels measurement on five acres, and 107 bushels of corn on one acre—of potatoes, 376½ bushels on one acre—of sugar beets, 495½ bushels from half an acre—of ruta baga turneps, 350 bushels from half an acre.

HENRY STATTS, *President*.

GEO. KNEELAND, *Secretary*.

DELAWARE COUNTY AGRICULTURAL SOCIETY.

In obedience to the provisions of the act passed May 5, 1841, to promote agriculture, I present the following abstract of the proceedings of the Delaware County Agricultural Society. The amount of money received from the State, was $106; received by subscription, $106; balance from last year, $54; making a total of $266. The second annual Fair was held at Delhi, October 12. [The list of premiums, which are here detailed, amounted to $186. Among the premiums awarded, was one to Jabez Bostwick, who made from eight cows, from 1st of May to 10th of October, 1,341 *lbs.* of butter, besides what was used in his family, and making cheese one week during the time.

At a meeting of the Executive Committee, on the 25th November, premiums were awarded for the best and second best half acres of Indian corn, the yield being 36½ and 32½ bushels. For the best acre of spring wheat, to L. W. Andrews; yield, 33½ bushels. The ground was planted with potatoes the previous year, plowed in the fall, manured and harrowed in the spring. For the second best acre of spring wheat, to Levi Hanford, 27½ bushels, cultivated same as preceding, except that the manure was applied in the fall, previous to plowing. The premium crops of potatoes, produced 213 and 201 bushels on half an acre. Ruta bagas, first premium, 308 bushels on one-fourth of an acre. For the greatest nett profit from one acre, the premium was awarded to W. B. Hanford for an acre of potatoes—raised 402 bushels, at an expense of $28.89; estimated at 18¾ cents, the clear profit would be $46.11. The second premium for the same object, was awarded to Street Dutton, for an acre of potatoes, planted on sward, plowed in the spring, and manured with long coarse manure. Expense, $36.31; product, 426 bushels; profit, $43.56. A premium was awarded on an acre of oats, yielding 67 bushels. The total amount of premiums awarded at this meeting was $73.]

Mr. Jonathan Benedict, who received the first premium on drained sugar, furnished the following statement: "The vessels to hold the sap were perfectly clean. Before the sap is boiled, it is strained through a flannel cloth; boiled in a sheet iron pan down to a syrup; then taken out and cooled; then strained into a kettle to cleanse the syrup. I make use of a pint of milk to three gallons of syrup; then place over a slow fire, boil and skim as long as any thing impure rises to the top. Boil until the syrup begins to rope, then turn it into a a hopper, and let it stand ten or twelve days, with a plug in the bottom of the cask. I use a wet cloth over the sugar, changing the cloth once a week for three or four weeks."

There were satisfactory vouchers presented, on all crops for which premiums were awarded; but as the crops were not deemed to be any thing extraordinary, on account of the frosts in June, and the drouth in July and August, in this county, it was deemed by the Executive

Committee not to be interesting to forward a particular detail of the manner of cultivating the ground and crop.

JABEZ BOSTWICK, *President.*
GEORGE STURGESS, *Treasurer.*

Delhi, December 26, 1842.

ERIE COUNTY AGRICULTURAL SOCIETY.

THE premium list of this Society amounted to nearly $500, and over $400 was awarded in premiums at their second annual Fair, held at Buffalo, on the 5th and 6th of October—"two glorious days for the farmers of Erie county." The number of fine horses, beautiful cattle, superior specimens of sheep and swine, and the great variety of farm products, domestic manufactures, vegetables, fruits, &c., have rarely been exceeded in any part of the state.

The committee on cheese remark that "the specimens offered were of surpassing excellence. The premium for the best cheese is awarded to a lot of five cheeses taken from a wagon load, weighing about 100 lbs. each, from the dairy of H. Arnold & Son, Hamburgh, made from the milkings of night and morning, brought to the temperature of 85, thus standing 1¼ hours, then cut up and standing in whey until the temperature is raised to 100, and in the same condition cooled, after which the mass is wheyed, salted and sent to the press. The richness and flavor of this cheese was fully equal to any ever seen in this county."

The second premium was awarded to two lots, made by Truman Austin of Hamburgh, assorted by size, and nearly of the same flavor, and made precisely in the same manner. First, milk of night and morning raised to 92, set in rennet 40 minutes, scalded at 105, one tea-cup of salt to 19 lbs. cheese, and pressed 24 hours. No. 9 consisted of five enormous cheeses, weighing nearly 300 lbs. each. The specimens differing in little else than size.

The premium crops produced as follows per acre:—Indian Corn, 57 bushels; Oats, 67; Barley, 42; Carrots, 1124½; second best, 1040; Ruta Bagas, 1000; Beets, 1280.

The oats were grown on sandy loam, in oats last year; the stubble plowed under about the middle of May, and the seed, two bushels, sown a few days after.

The barley was from a gravelly soil, slightly mixed with loam, in corn the previous year. It was plowed in the fall and again in the spring. Ten loads of cow stable manure were spread on the acre. The land was harrowed and rolled, and seed sown the 9th of May. Mr. Carpenter, to whom the premium was awarded, says—"I have always found great benefit in a thorough rolling of my lands for the barley crop."

Mr. Manning Case, to whom the first premium for carrots was awarded, states that the soil on which his carrots were raised, was a

stiff clay, and a hard sub-soil, in carrots last year. The ground plowed in spring immediately previous to planting; then dragged, rolled, and dragged again; then rotten manure, at the rate of six cords to the acre, equally spread on the surface; then plowed and dragged. Carrots sowed in drills with a machine; rows twelve inches apart; thence from one to five inches apart in the drills; sowed at the rate of 4½ lbs. seed to the acre; but 1½ lbs. would have been abundantly sufficient had they been placed at the proper distance. Seed planted 21st or 22d day of May; cultivated with the hoe.

Mr. Abner Bryant, who received the second premium on carrots, says—"The variety sown was the Long Altringham. Seed sown in May, at the rate of one pound per acre. Soil, light loam; 20 loads fermented barn-yard manure per acre spread over the ground, and plowed under the previous autumn. Plowed again early in the spring, and well harrowed. Sowed on ridges 28 inches apart; thinned out to about three inches in the row; hoed twice after once weeding. The cultivator was used freely. It was strictly a farm crop, and ordinary farm culture employed."

The premiums for ruta bagas and beets were also awarded to Mr. Bryant. They were cultivated as follows:—"White sugar beet seed sown at the rate of 4 lbs. per acre, on light sandy soil, prepared in autumn by plowing under 10 loads of fermented barn-yard manure. Plowed again in spring, and well harrowed, put into ridges 28 inches apart, running north and south. Sowed 22d April. Plowed them out twice and hoed them three times. The black grub destroyed a great quantity of the plants, so that no thinning was necessary; one quarter of the ground at best was unoccupied by the roots. The crop received the same attention as ordinary field crops, and nothing more. The same ground was in potatoes the year previous, and produced a good crop.

"The ruta bagas, yellow variety, were cultivated as follows:—Sowed 12th June, on light loamy soil, prepared by plowing under 20 loads of fermented barn-yard manure, in May. Plowed again in June, and well harrowed. Ridges 26 inches apart; passed the cultivator once through the rows, and hoed twice. Sowed with a machine, 1 lb. seed per acre; covered too deep; but about two-thirds of the ground was occupied by the plants. Ordinary field culture only was employed."

GREENE COUNTY AGRICULTURAL SOCIETY.

To the Executive Committee of the New-York State Agricultural Society:

In obedience to the provisions of the act passed May 5, 1841, to promote agriculture, I present to your board the following abstract of the organization and proceedings of the Greene County Agricultural Society, in the years 1841 and 1842.

At a meeting held, pursuant to notice given by the clerk of said county, as required by the act aforesaid, an Agricultural Society was formed, a constitution adopted and officers elected on the 28th day of August, in the year 1841.

On the 16th day of April, the executive committee met, and made out a list of premiums to be awarded at the first cattle show and fair of the Society, to be held at Cairo, Oct. 19th. The committee solicited the exhibition of additional articles, with the expectation of awarding additional premiums.

At the annual meeting of said society, held on the first Tuesday in Sept., 1842, for the purpose of electing officers for the ensuing year,

Anthony Van Bergen, was elected President.
Gen. William Salisbury, 1st Vice-President.
George Griffin, 2d do
Christopher L. Kiersted, 3d do
Elisha Blackman, 4th do
Theodore Provost, 5th do
James Van Deusen, Recording Secretary.
Richard Van Dyke, Corresponding Secretary.

Cornelius Rause, Treasurer, and James M. Sanford, Leonard Bronk, Nathan Clark, James Hawley, George L. Rundle, Elias B. Austin, Henry Kinsley, John Kiersted, Jr., Zadock Pratt, Isaac B. Hinman and Mathew Sayre, with the above named officers, were elected executive committee.

The Committee on field crops, report that they have examined the various statements of claimants for premiums on farm crops, and award on corn crop:

1st premium to Christopher L. Kiersted, $4.
2d " Jonathan W. Thorn, $2.

The product of C. L. Kiersted's acre of corn was 97 bushels and 28 quarts, actual measurement.

The product of J. W. Thorn's acre of corn was 84½ bushels.

From Mr. Kiersted's statement, it appears his ground was a gravely loam with a stiff sward, plowed smooth in the spring, harrowed well, marked it out very light about two feet nine inches each way. Then he took sheep manure and put a small double handful in each hill and covered the manure lightly, and then planted the eight rowed yellow corn on the 13th of May from six to eight kernels in a hill, covered it with care; after the corn came up, plastered it. Plowed and hoed, and then again plastered. Plowed and hoed the second time and then left it; thinned it out the first time hoeing; cut up by the ground, set it in stouts and husked in the field; and from one acre he got a yield of ninety-seven bushels and twenty-eight quarts. He estimates his expense of all the labor, manure, plaster, &c. and gathering the corn, at..... $19 00
97 bushels 28 quarts, at 50 cts. per bushel,..... $49 00
6 loads of stalks,..... 12 00
——— 61 00

Carried forward,..... $42 00

Brought forward,	$42 00
For use of land,	10 00
Nett profit,	$32 00

From Mr. Thorn's statement, it appeared that he broke up old sward ground in the fall, and harrowed in the spring and gave it a good dressing of long manure; then cross plowed and harrowed again. Ridged and planted three feet apart each way; planted the twelve and sixteen rowed corn; harrowed it soon after it came up, and hoed and plastered; plowed two furrows in a row each way, and hilled it and plastered again. Cut up by the ground and stouted and husked and yielded 84½ bushels of corn.

The committee also award on rye crops,

1st premium to Christopher L. Kiersted, for 36 bushels of rye from one acre, $3.

He states that he sowed one and a half bushels of clean rye to the acre, and harrowed well and furrowed sufficient to drain the water; cut with a scythe, put in dutch shocks and threshed and cleaned thirty-six bushels clean rye from the acre. The ground was broken from a sward in 1840 and planted to potatoes, and in the spring of 1841, sowed with spring wheat; and after the wheat came off, plowed about four inches deep, and sowed to rye as above, about the 12th of Sept.

Also awarded on oat crop,

First premium to C. L. Kiersted, for 87½ bushels of oats per acre, $2.

Statement.—The ground plowed deep and fine; 21st of April sowed the common black and white oats, four bushels to the acre; harrowed fine and left. Cut and taken into the barn, threshed and cleaned; and from an acre, got a yield of 87½ bushels of oats; corn and rye crops taken off the piece immediately before.

Your committee also award,

To Jonathan W. Thorn, for the best acre of buckwheat, 34½ bushels, $2.

Statement of Mr. Thorn.—The ground, a clover sward, plowed the latter part of June, then harrowed and sowed and harrowed about the 8th of July; and put on about one bushel seed buckwheat to the acre. Harvested in the ordinary way and kept no account of expenses; one acre gathered and kept separate, yielded by actual measurement, 34½ bushels.

Your committee also award,

To James Van Deusen, for the best lot of beets, $3.

The land was a gravely loam. The condition of the land previous to the present crop, for the last ten or twelve years, had been cultivated with potatoes, turneps, beets and carrots, and manured with fifteen or twenty loads of coarse manure per acre yearly. In May last, was a dressing of coarse barn-yard manure, spread on; then plowed and harrowed; then another dressing of manure; again plowed and harrowed; then ridged and planted on the 17th May, about two feet apart; nine inches apart in the rows; used about three-fourths of a pound of seed; filled up by transplanting; weeds cut

up twice with a hoe; afterwards pulled up by hand, and yielded at the rate of eight hundred and sixty-six bushels to the acre.

Your committee also award to Almeron Marks, a premiumon carrots, $3.00. The land had been cultivated for five or six years previous with corn, potatoes and roots; generally manured in the spring of each year; plowed deep, and covered with hog-pen and barn-yard manure, at the rate of forty one-horse wagon loads per acre, the present season; seed used was the long orange carrot; used about one-fourth of a pound on the piece; sowed by hand on the 6th and 7th of May, in drills about eighteen inches apart; sowed thick generally; some portions of the seed failed; weeded twice and hoed twice with a garden hoe and thinned out by hand, except a small portion which was left to grow thick; the actual expense I cannot ascertain, as a part of the sowing, weeding and hoeing were done by myself and students at odd spells, but as near as I can estimate the expense it is as follows:

5 Loads of manure at 18¾ cents,.....	$0 94
One day man and horse plowing,.....	1 00
2 days sowing the seed, ...	1 50
Expense of weeding and hoeing twice,.....	3 00
Expense of gathering and securing,.....	5 00
	$11 44
Yielded 150 bushels from one-eighth of an acre, valued at 18 cents per bushel,.....	27 00
	$15 56

Your committee also examined a fine specimen of a bushel of timothy seed, produced by Nathan Clark; he gathered on his farm from one field, eleven bushels, perfectly clean and free from all foul seed. We think examples of such a nature ought to be encouraged and followed, instead of the farmer's paying out his money for seed of other regions of a foul description; we therefore award to Mr. Clark a premium of $3.

Description of Mr. Clark.—He says he collected from his meadow eleven bushels of timothy seed, by cradling the heads off and then mowing the grass; gathered, threshed and cleaned the seed in the usual way, and that the expense of saving the seed would not exceed fifty cents per bushel, and in his opinion it is a great economy for every farmer who has a clean growth of timothy to save his seed, and loses but little if any in the quality and quantity of the hay, as the same can be pressed and fed out to stock.

Report of Committee on Farms.

Your Committee on Farms would respectfully report, that they, in the discharge of the duties assigned them, have examined seven farms, situated in six different towns in said county; and here permit us to say, that owing to the distance your Committee reside from each oth-

er, and to causes over which they had no control, we have had only two and a half days to perform our tour of duty, therefore a very minute description of the different farms must not be expected.

The first farm your Committee were invited to examine, belonged Mr. Peter Roggen of Oakhill, in the town of Durham. The farm contained one hundred and forty acres, and about one hundred and ten under improvement, and is situated on the south side of the Catskill creek, and bounded by woods on the west and north; general surface inclining to the east, and composed of sand and loam, and in some places coarse gravel was seen, except two lots, one of which appeared to be of a more tenacious soil, the other gave evidence of once being very stony and was of a slight gravely soil. Perhaps a more desirable situation for farming, cannot be found in the county. The farm is divided into nineteen lots, by stone walls, varying from five to nine acres in a lot; walls from two and a half to three and a half feet thick, and from three to five in height; those of a less height than four feet, had posts in the center and boards nailed at the top; the passway into each lot was furnished with a substantial framed gate on iron hinges, and not a brush or brier was to be seen in any of the fields. The general appearance of the farm gave evidence of an abundant harvest. The fields recently seeded down, showed that the occupant seeded with a liberal hand. We learned from Mr. Roggen that he had been in possession of the farm three years, and since that time all these repairs and fences have been made; which is an evidence to your Committee that he prefers investing his surplus capital in his own farm, rather than taking a bond and mortgage on that of his neighbor, which your Committee believe is too much practiced by agricultural capitalists. The dwelling house appeared to be in fine condition, and, in fine, every thing around gave evidence of perseverance and skill.

The next farm your committee visited, was Mr. Lewis Sherrel's in the town of Greenville, and lies about half a mile north of Greenville village, and principally on the west side of the road; containing 160 acres of somewhat a rolling surface from east to west, but of easy access to any part with team, and is well adapted to grain or grass; and from appearance, produces more than an average crop, compared with other lands in that vicinity, and is divided into seventeen lots of equal size. The fences are all made of stone from three to five feet thick and from four to five and a half feet high. Mr. Sherrel informed your committee that all the wall on his farm was over nine miles; and what was very remarkable on this farm, as well as of that of Mr. Roggen, no shrubbery of any kind was seen along the walls or in the fields; and every field was entered by a swing gate made in a cheap and substantial manner, and balanced on the top of the gate post, and safely fastened shut by means of a mortice in the top of the post with a hook and staple under the top rave of the gate. The dwelling-house gave evidence of taste and economy. The outbuildings were in good order and well arranged for the purposes intended. The present occupant and his father have been in posses-

sion of this farm for twenty-five years; and your committee have every reason to believe that while these improvements have been making, they have exerted a beneficial influence over others in the march of improvement, and will be a lasting monument of their skill, industry and perseverance.

Your committee next viewed Anthony Van Bergen's farm in New Baltimore, and here we were seriously disappointed in not finding the Judge at home, and time would not allow us to delay; we therefore will not attempt to give a description of his farm, being satisfied we should not do him justice if we attempted; but would remark that every thing we saw, gave evidence that he too, was on the road of improvement, and well qualified to give information to inquiring agriculturists.

We next called on Mr. George Griffin, in the town of Athens, and here, as before, were obliged to pass rapidly on, taking a very imperfect survey of the farm and buildings; but sufficient was discovered by your committee to satisfy them he was teaching a lesson to those around him owning similar lands, and which would be much to their interest if followed. We were informed the farm contains 255 acres and divided into seven lots—and one lot contains 180 acres principally in grass on what is called the Athens flats, about one mile west from the Hudson river. On this lot we were shown the beneficial effect of draining, liming and ashing. Mr. Griffin appears to have spared no pains in reclaiming his lands from their former unproductive state, and are now made to yield a profitable return for the outlay. The fences are of wood and stone wall, but your committee cannot tell the proportion. We noticed a wall on each side of the road the whole length of the farm, which gave decided evidence that the builder was possessed of superior skill and taste, and on the whole was the best wall we have viewed. The mansion house is stone, and in every respect in good condition, and the out buildings well arranged and in good order for the purposes; indeed, both in respect to durability, comfort and convenience of stock, and protecting the crops, and also the manufacturing and saving of manure; and in short we discovered strict economy in all things about the premises.

Mr. James Van Deusen owns the next farm viewed by your committee. The first object that attracted our attention about the premises, was a dinner table well supplied with the products of the farm, and in excellent order, and all examined and handled the same with anxiety. Your committee do not mention this because it was a rare occurrence, for we were every where treated with the greatest kindness and hospitality. We then proceeded to examine the farm, which contained about 100 acres under cultivation, divided into 12 lots, and is situated on the west side of the Catskill creek, and is composed of a deep, rich and highly cultivated soil. On this farm may be seen the difference between good management, when compared with some of the neighboring fields neglected. The fences on this farm are principally composed of rails, posts and boards, and generally in good condition. The crops, ungathered and where they had been gather-

ed, gave decided evidence that they were not inferior to any farm your committee had examined. The buildings on this farm are all in excellent condition, and well arranged.

The next farm your committee proceeded to examine belonged to Richard Van Dyck, Esq. of Cairo. In this case, as in a former one, very much to our regret, we did not find the owner at home. This farm contains 100 acres under improvement, and is divided into 7 different lots. The fences are mostly of stone and in excellent condition, and well arranged for the conveniences of water and other purposes, and cleanly kept from weeds, briers and other foul stuff; and the appearance of crops was generally good, and all things on this farm shows ability in the owner to compete with any of our agricultural brethren in the management of a farm.

The last, though in very many respects not the least, was the farm of Stephen Hotchkiss of the town of Cairo, and contains 75 acres, and may be viewed by some of the competitors as rather a fortunate circumstance for them that it did not contain 100 acres; and is situated in the northeasterly part of the town, one mile east of the Catskill creek, and does not embrace any of the rich alluvial soil bordering on that stream; and is divided into 11 lots fenced with stone wall, built in a very substantial manner, and well arranged for convenience and kept in excellent order. Every part of the farm and buildings influence your committee to say, that he is richly deserving of our *diploma*.

And in conclusion of the whole matter, your committee have thought proper to award the first premium to Lewis Sherrill of the town of Greenville.

And the second premium to Mr. Peter Roggen of Oak hill.

All of which we respectfully submit.

ELISHA BLACKMAN,
JAMES MUMFORD,
GEORGE L. RUNDLE,
} *Committee.*

ALMERON MARKS, *Rec. Sec'y Greene Co. Ag. Soc.*

HERKIMER COUNTY AGRICULTURAL SOCIETY.

I HAVE been reminded of my duty to make a report of the proceedings of this Society, of which I have the honor to be president.

Inasmuch as I cannot now fulfil my duty to the letter of the law, I will not even attempt to make a formal report of our proceedings in this county. They were similar to others in general plan, varying but little in matter of public interest, from those in the other counties, some of which have doubtless gone into a full detail.

It is sufficient to state, that the fair, which was held at Herkimer, on the 20th of October last, was sustained with spirit; that a goodly number of competitors exhibited a large collection of beautiful blooded and native stock of cattle, horses, sheep and swine, and a

great many choice samples of farming products and articles of manufacture, and farming implements.

The exhibition was peculiarly rich in the staple articles of this county, butter and cheese; premiums were awarded; an excellent address delivered; and the people departed at the approach of night wishing the day had been longer.

In a single feature, this Society differs, perhaps, from that of any other in the State. It is well known that a large proportion of our farmers have a propensity to get rich by making cheese; we raise but little stock for market and less grain. The best cattle with us are those which give the most and best quality of milk, in proportion to the food they consume. The value of the Short Horn Durhams as a stock for beef, and of the Devons for working oxen, is appreciated, and this county can exhibit a goodly number of fine specimens of both breeds, especially the former, among the wealthier class of our farmers. Yet the opinion prevails, and is founded on careful observation, that neither of these stocks of cattle yield milk equal to the smaller and homelier native breed, when the quantity of food consumed is taken into the account.

A leading object of the Society and indeed of the State bounty, is to elicit and diffuse useful information, to improve the condition, lessen the toil and increase the gains of the agricultural portion of our community.

The article of product for which Herkimer county is chiefly distinguished, and for which its soil seems peculiarly well adapted, received our consideration; and our results may be of some interest in other parts of the country. Among other premiums offered, were some for experiments to be made, to show the product in weight of manufacturing a given quantity of milk into good cheese. The premium was offered to as many as would make and communicate the experiment without regard to competition as to the result. It was so late when offered that only one was reported, consequently it is not known how it would compare with others. The result I send herewith, as also the method adopted of manufacture by the farmer who took the premium for the best cheese.

The prize essay on the management of a cheese dairy, has been returned to the author by his request to enable him to make some corrections, I believe. If I can procure it in time for the publication of the annual report, I will forward it to be appended, if thought best.

With great respect,

ARPHAXAD LOOMIS.

CHEESE—MR. CROSBY'S STATEMENT.

The following is the process of making the dairy of cheese which took the premium at the Fair at Herkimer, October 20, 1842:

My method of making cheese is to take the cream off from the night's milk and let it stand until the morning's mess is added; it is put into the strainer and the milk that is heated turned on to it which

dissolves it and prevents its escaping with the whey; the milk when ready for the rennet should be some degrees less than milk warm (as I never have used a thermometer I cannot say how many.) My method of preparing the rennet is, when taken from the calf to turn it inside out and strip off the filth with dry hands; it is then salted and lays three days in the salt, then turned back and stretched on a stick to dry: when wanted for use it is put into a tight vessel and three quarts of warm water added to each rennet; a common tea-cup full when so prepared, will cause four barrels of milk to coagulate; it should be about one hour in coagulating. When sufficiently hard, it is cut up with a machine made for the purpose, and left to settle; when sufficiently settled, the whey is dipped off and put over the fire and heated until it is as hot as the hand can bear to be put to the bottom of the kettle. Before it is put on the curd the butter should be carefully stirred up, and as much whey as is necessary for cooling the curd after it is scalded is dipped off and set aside. The scalded whey is then carefully dipped on and the curd stirred up; then a second mess is dipped off and heated in like manner. Before the second mess is put on, the whey is dipped off and the curd stirred again; it is then put on and stands until scalded hard enough; the whey is again dipped off and the curd stirred up, the cooling whey is then put on; it is then dipped into the sink to drain off the whey, and ground in the machine which I mentioned in the apparatus for making cheese; it is then ready to receive the salt, which is put in, in the ratio of a common tea-cup full to sixteen pounds of curd, (though some allowance should be made when the curd is not drained very dry,) the salt should be well stirred in; it is then ready to be put into the press; it is turned once while in the press and remains in the press twenty-four hours, then carried into the cheese house and painted with annatto; it is then greased with butter made of cream taken from the whey, and turned every other day, when new, and greased at the same time; when it is cured it should be turned and greased as often as necessity requires.

N. B. My method of scalding is so that the curd will creak between the teeth when chewed. HENRY CROSBY.

Salisbury, October 18, 1842.

Mr. YOUNG'S STATEMENT.

For the following experiment, a premium of one year's subscription for an Agricultural paper was awarded at the Fair at Herkimer, October 20, 1842:

I here report to the Herkimer County Agricultural Society the result of thirty days' experiment in making cheese from a given quantity of milk, viz: from twenty cows. September 20th commenced measuring the milk and weighing the cheese made from the same when taken from the press; found the milk to weigh nine pounds to the gallon.

	galls.	*lbs.*		*galls.*	*lbs.*
Sept. 20,	62	67	Sept. 26,	60	67
21,	64	70	27,	61	66
22,	62	66	28,	59	66
23,	65	75	29,	57	60
24,	63	66	30,	56	62
25,	65	71			
				674	733

The above was made by straining the evening's milk into a tub and keeping it till morning; the cream which rises during the night is skimmed off; about half of the evening's milk is put into a tin vessel, and partly immersed in a larger kettle containing water, by which it is heated sufficiently to raise the whole mass to 90 degrees; the morning and evening's milk are then put together, and rennet enough added to coagulate it in about forty minutes; it is then broken up by hand and scalded to 98 degrees for half an hour; the whey is then drained off and 1 lb. of fine Salina salt added to 40 lbs. of curd, and pressed in the usual way; being in press 48 hours before it is weighed.

Oct. 1st, changed the process by heating the whole of the evening's milk so as to make the whole come up to 90 degrees of heat when mixed with morning's milk, and had additional help to break up the curd slow and fine, and keeping the same at 85 degrees heat during the process. Curd worked very fine and scalded forty-five minutes at 95 degrees. The same quantity of salt added; pressed and weighed the same.

	galls.	*lbs.*		*galls.*	*lbs.*
Oct. 1,	56	72	Oct. 11,	48	60
2,	56	70	12,	55	62
3,	58	69	13,	54	66
4,	57	69	14,	55	70
5,	59	71	15,	57	67
6,	62	72	16,	53	65
7,	58	70	17,	52	67
8,	58	66	18,	49	60
9,	55	63	19,	50	64
10,	55	61	20,	50	62
	523	643		574	683

The above separate statements show an increased ratio from the given quantity, notwithstanding a diminution in the quality of grass by frost. The regularity of heat, &c. was improved during the last ten days of the experiment, which is the only difference in process. During the first fifteen days, the cows were fed with green corn raised by sowing broad cast. During the balance of the time they were fed four quarts of oat and barley meal per day, each, with whey.

WILLIAM C. YOUNG.

Litchfield, Oct. 19, 1842.

Note.—The above statement, showing results in the manufacture of this leading staple in this county, though valuable, is defective in some particulars. He ought to have stated whether any means were taken to mix in the cream which rises on the milk over night, so as not to have it run off with the whey. Some dairymen heat it with the milk and stir it in while hot. He should likewise have given the weight of pressure on the cheese. But this may be easily computed. When the old fashioned press is used, which is by means of a weight on one end of a lever, resting on the cheese-follower as a fulcrum near the other end, the weight on the end should be multiplied by the number of times the shorter end of the lever is contained in the longer part, both measured from the point where it rests upon the cheese, and adding twice the weight of the longer end of the lever or stick itself. The more recent or improved presses are generally constructed to press by the application of a lever or pulley, and may be computed by the rules applicable to those powers. The use of a thermometer ought to become more general than it is, and would add much to the uniformity of the article and to the certainty of experiments to ascertain the degree of heat required to obtain the largest yield. A.

KINGS COUNTY AGRICULTURAL SOCIETY.

Report of the Committee on Farms and Grain.

At a meeting of the Kings County Agricultural Society, held in Flatbush, July 2, 1842, Jeremiah Johnson, Garrit Kouenhoven and Garrit Stryker, were appointed a committee on farms and grain on the part of said Society for the county of Kings.

On the 19th of July the committee inspected the wheat fields of Mrs. Caton, of John Ditmars, of David Johnson, Adrian Vanderveere, and Lott Wyckoff, of the town of Flatbush, and of John Remsen of the town of Flatlands, in said county. The committee found all the fields ripe and the crops good. They decided that the field of wheat of John Ditmars was the best; the yield reported at 40 bushels per acre.

On the 6th of October the committee inspected the farms of Lott Wyckoff, David Johnson, John Ditmars, Adrian Vanderveere, Nicholas Williamson and Samuel Smith, which severally contain above 75 acres, and the farm of Richard Cooper, containing 25 acres. The committee decided that the farm of Lott Wyckoff was the best cultivated farm, and that Nicholas Williamson's was the second best; and that the small farm of Richard Cooper was the best enclosed and cultivated land in the county.

On the seventeenth of October the committee inspected the corn fields of Johannis Lott, of the Messrs. Elgeo, and of Charles Betts, and they decided that the field of Johannis Lott was the best.

The field of Mr. Lott contained six acres of land. The land had been sown with buckwheat the last year, and the land was poor. In the spring the land was spread over with barn-yard manure, about 20 loads to the acre; also with 140 bushels of ashes per acre; the whole plowed in together and planted the first week of May, with dented corn. The field had been well tended. The committee found the yield per acre to be 99 bushels and 8 quarts. Weight 48 pounds per bushel.

The corn field of the Messrs. Elgeo contained 16 acres of sward land, plowed in April and planted about the first of May, with dented and flint corn; manured in the hills with barn-yard manure; the land had been well tended. The committee found the yield per acre of dented corn to be 72 bushels and 44 pounds. The weight, 48 pounds per bushel. The flint corn yielded 66 bushels and 36 pounds per acre. Weight, 54 pounds per bushel.

The field of Charles Betts contained about eight acres, treated and managed as the land of the Messrs. Elgeo's had been, and planted with flint corn. The measure, 66 bushels and 36 pounds per acre. Weight, 54 pounds per bushel, corresponding exactly in measure and weight, with the crop of the Messrs. Elgeo.

The committee have received reports of the products of three of the farms which they inspected.

Dr. Adrian Vanderveere has 181 acres of land, whereof

12	acres was in wheat, the yield		36	bushels.
16	" in potatoes,	"	3,000	"
62	" in hay,	"	180	tons.
20	" in oats,	"	1,200	bushels.
30	" in Indian corn, crop good.			

Nicholas Williamson; farm 101 acres—reports

20 acres in Indian corn.
22 " in hay, and 17 in wheat.

Samuel Smith's farm; 125 acres—reports 12 acres in wheat, 60 acres in hay, 20 acres in corn, and four acres in buckwheat.

The commitee, on a review of the county, observed that the farmers were improving in agriculture. They have discovered that the farmer who uses the most manure and cultivates his land best, makes the most money; and that it is folly to till poor worn out land.

By order of the Committee on Farms and Grain.

JEREMIAH JOHNSON, *Chairman and President of the Kings County Ag. Soc'y.*

Brooklyn, December 21, 1842.

LEWIS COUNTY AGRICULTURAL SOCIETY.

The undersigned, President of the Lewis County Agricultural Society, reports as follows:

The printed sheet herewith sent, contains the constitution and by-laws of said society, with a list of premiums, &c. The other papers contain all the reports and statements which have been received from applicants, &c.

The Society held its first annual fair in the village of Martinsburgh, on the 18th day of October, 1842, and awarded premiums agreeable to the printed list, with some additions, to the amount of $140. It has been very difficult to excite an interest in the subject of the Society in the minds of the citizens; and yet the first fair was pretty well attended, and a favorable impression made upon the public mind, and some degree of enthusiasm kindled up. Enclosed you will find the report directed to be made to the Comptroller, which, after examining for your information, you will please transmit to the Comptroller's office. CLEMENCE WHITAKER.

Martinsburgh, Dec. 28, 1842

Report of the Committee on Butter and Cheese.

The committee apointed to examine specimens of butter and cheese at the Agricultural Fair, held at Martinsburgh, Lewis county, on the 18th October, 1842, report, that the number of specimens of butter offered for inspection was about 20, and of cheese, 15.

In reference to the quality of the butter exhibited, the committee remark, that with few exceptions, it was deficient in one respect, viz: the buttermilk was not removed thoroughly. This is a great defect in the manufacture of butter. The flavor is injured by it, and certainly it becomes rancid much sooner than when it is thoroughly removed. Some of the specimens exhibited were, in the judgment of the committee, oversalted, and two or three samples had evidently been worked so much as to become salvey.

The committee would recommend to persons engaged in the manufacture of butter, the observance of the following as important rules:

1st. Every particle of buttermilk should be removed.

2d. Great care should be taken in salting, that no more salt be put in than will dissolve readily, and if the ground or fine salt be used, (which is preferable,) more care will be necessary than in using the coarse, or an undue quantity will be used.

3d. In working the butter, too much care can not be observed, or it will be overworked and become salvey.

4th. It is recommended that each dairyman be particular to see that the tubs used are made of timber thoroughly seasoned, and that they are well and *handsomely* made, and of uniform size.

5th. That the milk room be kept sweet, and the rack be used instead of shelves, and that it be well ventilated, and finally, after the ubs are filled, they be kept on timbers in the cellar, removed slight-

ly from the wall and cellar bottom, and in as dry and cool a place as is possible.

The samples of cheese exhibited, approached nearer to uniformity in quality than was expected, and the committee had some difficulty in satisfying themselves as to who was fairly entitled to the premiums, but came to a decision after using their best judgment.

They were glad to perceive that generally the samples exhibited were not over salted nor scalded too much, the effect of either of which is to render cheese dry and hard. There has been a manifest improvement in the manufacture of cheese in the county in the last five years; and the remark will apply with equal force to the article of butter. Of this fact the committee are abundantly satisfied from personal observation. The fact too, that dealers in butter and cheese in the eastern States have, within the last few years, turned their attention to the productions of this county especially, furnishes gratifying evidence of the improvement alluded to. It rests with the manufacturers to see that they hereafter retain the demand from that source; and if the improvement of the last six years is continued for six years to come, the committee hazard nothing in saying that a demand will be readily formed, and at home, for the productions of the dairy in the county of Lewis.

Annexed will be found a statement from each of the successful competitors for the premiums on butter and cheese, of the course of manufacture pursued by them, and they are respectfully commended to the notice of all interested in the improvement of the manufacture of butter and cheese. M. M. NORTON, *Chairman.*

Statement from NORMAN GOWDY *of Martinsburgh, Lewis co. of the manufacture of his Dairy of Cheese, which received the first premium of the Ag. Fair, held 18th Oct.*, 1842.

To CHAS. DAYAN, Esq. *Sec. Lewis Co. Ag. Society:*

My dairy of cheese, a sample of which I propose exhibiting, and offering for the examination of the committee at the coming Fair in this county, was made from 38 cows. The quantity made the past season from them, was 14,500 pounds. My cows are stabled during the winter, and fed with good hay, and about the middle of March I commence feeding them provender made from oats, barley, &c. ground, and continue feeding it until I turn them into the pasture. I have two pastures adjoining each other, and during the summer I keep them in one during the day time, and turn them into the other at night. The day pasture has a good stream of water running through it, with a number of shade trees in it. In the manufacture of cheese, the following course is pursued:

The commencement of my cheese making is to have the proper implements, and these in good order. Pails, tubs, strainers, and every thing to be used about the dairy, I see that they are kept sweet and clean. I find by careful observation, that unless these rules are observed, cheese will not contain that good flavor that it may with an

observance of them. I find cheese made without any strong or rancid taste, before it comes to its state of fermentation on the shelf, stands the warm weather better and contains a smarter and pleasanter flavor when it is ready for the table. The vessel in which I set my milk, is a tin vat, which I set in a wooden one a few inches larger, and stands two inches from the bottom of the wood vat. To forty cows, (and in the same proportion for a less number,) during the warmest of the season, I turn in eight or ten pails full of cold water before I commence milking, and by the time the last is strained in, the first is cooled, and with two or three stirrings it all cools, so that it will keep till it goes through the process of making, in the warmest weather. During the night I cover it with a rack. I think this better than a strainer, as the heat, if any remains, will pass off better. In the morning I draw the water from under the milk, and put in a caldron kettle, which stands beside my vat. Then I take off the cream into a large tin pail, and set in the water, and by the time the milking is done, this is all sufficiently hot; then I put under my milk as much of the warm water as is necessary to warm it; then I put in the melted cream and apply the rennet. This, prepared in the ordinary way, takes one tea cup full to forty cows, and in the same proportion for a less number. The less rennet that can be applied, and have it coagulate good, the better. I have a tin knife * made for the purpose, with which I prepare my curd for the scalding, without much breaking with the hand. The heat I apply according to the temperature of the weather, always aiming at a fixed point, which can be done in warm weather with less heat applied than in cool. The curd I work fine, so that it will scald even, and the whey all separate; and scald slow, so as not to start the butter or oil from the curd. In the salting, I apply one tea cup full of salt to fifteen pounds of curd. I have two presses, and press forty-eight hours, with sufficient weight to start the whey before it closes together; to prevent the whey from pressing out, I turn them in the press in warm weather in 24 hours, and in cool sooner.

NORMAN GOWDY.

Martinsburgh, Oct. 15, 1843.

BUTTER—MR. ADAMS' STATEMENT.

Agreeably to the request of the officers of the Lewis County Agricultural Society, I give the following statement of my manner of making butter and treatment of the dairy generally.

We set our milk in tin pans on rack or slat shelves, in a cool dry room, having rolling window blinds, so that we can in some degree regulate the current of air. A free ventilation is necessary but it is possible to have too much. As soon as the milk begins to become sour, or before it coagulates, it is carefully skimmed into stone jars or

* The knife is made by first making a tin frame 12 inches square, with a wire handle running from each corner to the center, and forming a bow over the top, and twenty knives running across the frame from side to side, about three-eighths of an inch apart. The outside or tin frame, is about an inch wide, and the knives about half an inch in width.

tin pails, and placed in a cool cellar. In warm weather we churn all the cream we have on hand every morning. We use the dog churn.

When the butter is thoroughly formed, it is taken out and worked with a ladle, (or by hand if you please,) in order to get out all the milk we can before salting. It is then salted with the fine salt which comes in half bls., and put in a cool place till next morning, when the operation of working is performed; and this is done with a simple machine, of which I will give a brief description. It is an inclined plane 2¼ feet wide at one end, 3 inches wide at the other, and 3½ feet long, standing on 3 legs. On each edge of the sides of this plane and at the lower end, are fastened narrow pieces of boards which come up 4 inches above the surface of the plane. Then there is a lever 2½ inches square, 4½ feet long, made small and round at one end, which passes through the board at the narrow end of the plane, and by taking hold of the other end and moving it back and forth, it fits exactly to the plane and also to each side.

With this machine my butter is worked, and if it is not sufficiently cool to work out all the milk and brine at this time, the operation is repeated again next morning, and sometimes again the third day, being careful not to work it too much at either working, lest it become oily.

And here I would hazard an opinion, contrary to what many dairy people entertain. I think it as detrimental to the flavor of butter to wash it, as it is to beef to wash that before salting.

When the butter is ready for packing, we put it into firkins, previously filled and saturated with *strong* brine, (the same brine will answer for a number of firkins.) As soon as filled, the butter is sprinkled with fine salt, and the firkin well headed, so as to exclude all the air.

We use no seasoning for our butter except salt, and of the quantity of that, the taste is the test. A great deal of care and close attion is requisite in keeping every thing in the room sweet and pure, the pans, the shelves, (my shelves are painted, so are the floor and ceiling,) the churn and reservoirs for holding the cream. No milk should be suffered to stand till the cream becomes slippery or mouldy. A little leaven leaventh the whole lump, and a little buttermilk or a little sour curdled milk sours all the rest. My butter-worker is well scalded, and then rinsed with water from the well both before and after using.

My number of cows is 17. They were kept to hay in winter and also were fed a little meal during the latter part. Between hay and grass, fed potatoes. In summer, range in upland pasture; have free access to salt both summer and winter.

Have made 3,060 lbs. of butter, or an average of 180 lbs. to the cow, besides raising six calves and supplying our family, consisting of six persons, with milk and butter.

The above account of the product of my dairy, is mentioned, not in the spirit of boasting, but because it was urgently requested.

MELAS ADAMS.

Martinsburgh, Dec. 24, 1842.

MADISON COUNTY AGRICULTURAL SOCIETY.

The undersigned, President of the Madison County Agricultural Society, in pursuance of duty reports:

The records of the Society have not been so fully kept as to enable me to report as minutely, and on as many subjects as might be deemed necessary, for which reason this report must be comparatively defective.

At a meeting of the executive committee of this Society, held at Morrisville, the 12th of July last, there was a committee chosen to fix the rates of premiums, upon such stock and articles as they might deem proper. By reason of limited funds, and the numerous subjects that presented, the sums awarded were necessarily small; still, they had an influence in producing a very laudable spirit in favor of the agricultural interests of this county.

The first cattle show and fair of this Society was held at Morrisville, on the 11th and 12th of October last. The interest manifested by the farmers and mechanics upon that occasion, evinced their strong attachment to the objects calculated to be advanced by the Society.

The first day of the fair, the animals and articles presented for competition, were examined by the judges and their reports made to the executive committee.

The second day, as soon as the plowing match was completed, a procession was formed by Colonels T. C. Nye and J. M. Rockwell, which was conducted to the Presbyterian church, where an appropriate and eloquent address was delivered by Rev. Mr. Barrows of Cazenovia; after which the premiums awarded were declared off and paid. The Society then proceeded to the election of officers. The following is a list of the officers elected for the ensuing year:

George B. Rowe of Canastota, President; J. Ten Eyck of Cazenovia, S. B. Burchard of Eaton, O. B. Lord of Hamilton, Vice-Presidents; Thomas A. Clark of Chittenango, Corresponding Secretary; John W. Farwell of Morrisville, Recording Secretary; Jeffers Cross of Morrisville, Treasurer; Lewis Raynor, Job Wells, Elijah Morse, William Ward, Joseph K. Ackley, Thomas C. Nye, George Ritch, Benjamin B. Stewart; Ira G. Barnes, Curtis Hoppin, Charles Foster, Marvin Scott, David Irish, and Horace Hawkes, Managers.

Premiums were awarded upon the following stock and articles: neat cattle, foreign and native breeds, horses, swine, sheep, field crops, butter and cheese, household manufactures, farming implements, manufactures, iron ware, silk and twist, and several other articles which the judges upon discretionary premiums deemed meritorious, and small premiums were awarded.

The exhibition of neat cattle was large, and many of them were fine. A few Durhams and grade animals were presented for competition, but most of the cattle exhibited were of the native breed.

Several horses were exhibited, some of which were fine specimens. For the best stud, the first premium was awarded to Mr. D. E.

Hills, for his high-bred horse Sir Charles. The exhibition of swine and sheep were quite limited, but those presented for competition were of good quality. The swine were principally of the Berkshire breed; the sheep, Merino and Saxony, South Downs and Leicester. For the competition in field crops, but few specimens were exhibited. For the best acre of spring wheat, the first premium was awarded to Nathan Tidd. The wheat was of good quality and produced 32$\frac{3}{8}\frac{7}{8}$ bushels per acre. The first premium for the best acre of Indian corn, was given to Bicknell, Coman & Co. The quality of the corn was fair, and produced 117$\frac{4}{8}\frac{4}{8}$ bushels per acre. There were several small premiums awarded for other field crops, the specimens of which were good.

The specimens of butter and cheese which were exhibited were of first quality, and were deemed highly meritorious of the premiums which were awarded them.

Several articles of household manufactures were presented, in which was exhibited industry and good taste, well worthy of the premiums received.

In farming implements there was no competition.

The sewing silk and twist presented for examination were good specimens; but five samples were offered, the manufacture of which is quite limited in this county.

GEORGE B. ROWE,
President of the Madison Co. Ag. Society.

Canastota, Dec. 26, 1842.

MONROE COUNTY AGRICULTURAL SOCIETY.

THE history of Societies in the county of Monroe, for the improvement of the Garden and the Field, is recent and brief. In the years 1831, '32 and '33, Horticultural Societies were instituted at Rochester, and their influence has had an important effect on the productions of garden vegetables, fruits and flowers, and given an impetus to the spirit of improvement, which has distinguished that city and the neighboring towns over most locations in the Western District, and planted the germ of benefits for unborn generations.

In the year 1833, an Agricultural Society was formed, of which WILLIAM GARBUTT, of Wheatland, was the presiding officer. Its exhibition was joined with that of the Horticultural Society of that year; but, for the want of proper countenance and support by the public, it did not go off spiritedly, and was not renewed the next year.

After slumbering for several years, the Society was again revived, in a somewhat different form, under the title of the "Genesee Agricultural Society." A meeting of the friends of agriculture was held at the Court House in the city of Rochester, on the 28th of May, 1841, when a Society was organized, embracing a large portion of the western part of the State.

The Society held a fair at Rochester on the 7th day of October, which was well attended by farmers from the adjoining counties and Canada.

During the session of the Legislature for 1841, a law was passed giving a bonus of $8,000 to the different counties, in proportion to their population, on condition of their raising, in each county, an equal amount—the share of the county of Monroe being $194.

In consequence of the passage of this law, the Genesee Agricultural Society, by a vote of the members, changed the name to that of the Monroe County Agricultural Society, and restricted its limits to the county.

The Society was well supported, and had a brilliant and successful exhibition and fair on the 15th and 16th days of October, 1841. A spirited and eloquent address was delivered before the Society by E. Darwin Smith. Esq.

The annual Fair of the Society for 1842, was held at Rochester, on the 25th and 26th days of October. It was numerously attended on both days, notwithstanding the inclemency of the weather and the badness of the roads; affording the most conclusive evidence of the increasing interest felt by our farmers in the success of the Society. Of the address, it is sufficient to say that it was delivered by Rev. Henry Colman, and was listened to by a large and attentive audience, with the deep interest which his efforts for agriculture never fail to excite.

A meeting of the Society was holden at the Arcade in Rochester, on Wednesday, Jan. 4, 1843. The attendance was good, and the Society was fully organized for the year ensuing, by the choice of the following gentlemen as officers:

ROSWELL HARMON of Wheatland, *President.*
Wm. Garbutt of Wheatland,
E. Darwin Smith of Gates,
Wm. C. Cornell of Henrietta, } *Vice Presidents.*
H. M. Ward of Rochester, *Recording Secretary.*
L. B. Langworthy of Greece, *Corresponding Sec'y.*
C. F. Crosman of Rochester, *Treasurer.*

Committee of Management for the year 1843.

George Sheffer, Wheatland,
Nathaniel Harwood, Brighton,
George C. Latta, Greece,
Caleb K. Hobbie, Irondequoit,
E. H. Barnard, Mendon,
Jacob Strawn, Chili,
Gideon Ramsdell, Perinton,
Mills Landon, Ogden,
John H. Robinson, Henrietta,
Alfred Fitch, Riga,
A. Baldwin, Clarkson,
T. P. Root, Sweden,
David M. Smith, Rush.

The reports of the committees on Grain and Vegetable Crops, and on samples of Wheat, were then made to the Society, and the premiums awarded. These reports with the statements of the several claimants, will be found annexed, omitting only some of the certifi-

cates of the measurement of land and crops, which were according to the requisitions of the Society, and such as to satisfy the committees.

It was then, on motion,

Resolved, That the thanks of the Society, be presented to Mr. Henry Colman, for his faithful discharge of the duties of President of the Society during the past year.

Resolved, That this Society most cordially approve of the plan of Mr. Colman, of visiting Europe for the purpose of examining into and reporting upon the present condition of agriculture in Great Britain and on the continent, and especially into the management of the agricultural and manual labor schools and experimental farms, as likely to obtain an amount and kind of information in a very high degree valuable to the country; and that the Secretary of the Society present him a copy of the resolution.

The effects and results of the labors of the Society have given an impulse to improvements in all the branches of rural economy. Whatever impediments may have been thrown in their way, by those who are too conceited and self-sufficient to learn, or too misanthropical to desire to enlighten their neighbors, yet the supporters of the institution are strongly impressed with the importance of pressing forward in the great cause of Agriculture; the art of all arts; the progenitor, father and mother of all that ennobles and sustains the family of man; and notwithstanding what the most inveterately prejudiced, or the most determined cynic, may say of its benefits, at any rate the friends of the institution cannot be charged with doing any harm to society, or acting from interested or selfish motives. If nothing more is produced by their fairs and exhibitions than the introduction of its members to the acquaintance of distinguished individuals, and the establishment of an agreeable, harmless holiday, it will not, we think, be frowned upon by those who are kindly disposed to strew the sometimes thorny paths of life with fragrance and flowers.

The advantages to be derived from the association of individuals for mutual instruction, protection and encouragement, do not require to be enforced by argument. Has not the experience of ages sanctioned its benefits? Was any great object ever obtained except by organization and action in masses? It is the lever of Archimedes, which moves the globe. The institutions of governments, of churches, of charitable, missionary, temperance, literary and benefit societies, are examples; and all branches of mechanics and trade have their associations and societies. Shall not the Farmer be equally entitled to its advantages? Should he not be encouraged in every project that holds out a chance of improvement in this noblest of all improvements; the art which is the foundation upon which the whole superstructure of civilized society rests? There cannot be a rational doubt indulged upon the subject. It is a mere truism.

The bringing together of so many of the liberal, talented and respectable individuals, the very *elite* of the country, during an annual fair—all able and willing to compare notes with their brother co-laborers, and to diffuse, free as air, the experimental knowledge of their

crops—the show of the finest and most perfect specimens of the animal creation—the exhibition of the ingenuity of the country in all the mechanical implements of husbandry—all vegetable productions that eminently excel, including the grains, the fruits and the flowers —the beautiful productions of the loom, the needle, and the thousand triumphs of mind over matter; we say if all this display of the works of man and a higher power is not praiseworthy, and calculated to improve the mind and to impress the heart with gratitude to Him who conceived and created these paragons of excellence—then is the glorious sky and all its multitude of constellations a mere "congregation of pestilential vapors." We cannot conceive a case in which the searcher after truth and knowledge may more improve his understanding and gain new ideas for his future practice and improvement, and no one can be so stupid and careless as not to be moved by curiosity and admiration; two exertions of the faculties which will not at any rate prejudice his morals.

Opinions are debateable things, and facts are not very safely arrived at by inquiring minds, except by collision with contrary views. As man is gregarious, it is well he should be brought in approximation with his fellows; and how and when can it be more judiciously perfected than where men of his own craft "most do congregate?"

It is argued by some, that all societies and associations are wrong, and have a deleterious effect upon human society; that it renders them *clownish*, and begets an *esprit du corps* that narrows the mind and shrivels up the universal genius of man. It may be so in a measure, but we must take the world as it is; and there cannot be any good reason assigned why the Farmer should not have the advantage, pecuniary and honorary, that may grow out of a course found beneficial by all the other classes.

The writer, during the two or three years past, has had the good fortune to attend various agricultural fairs in this State; and the two last State Fairs, particularly at Syracuse and Albany, are marked trees and beacons of light in his memory. The Fair at Albany, in September last, was a most extensive and magnificent display. It seemed the *World's Farmer's Museum* collected in the *Coliseum* of the Empire State; and two hundred miles travel was amply compensated by this wonderful exhibition, and so we think thousands will respond who were there congregated. It was truly a feast of fat things; and no one was present at this show, who glories in the title of tiller of the soil, but must have left it a wiser and a better man, and felt ennobled in the dignity of his calling.

Intimately connected with agricultural associations is the *Agricultural Press;* and however sneeringly the over-wise, self-sufficient and narrow-minded may decry "Book Farming," the insinuation is so flimsy and preposterous that no liberal-minded and inquiring man will tolerate it for an instant. Is it to be presumed that any one is perfect? that he is all wise and beyond the power of increasing his knowledge? Is the experience of the long life of an individual endowed with an acute and discerning mind, worth nothing, when a column of ordinary print can convey the experience of years on a particular

subject in the clearest manner and beyond a cavil or doubt? If I discover a valuable fact in the rotation of crops or in the application of manures, or produce a new and valuable grain, vegetables or fruits, and discover it only to my immediate neighbors, there perhaps it dies; but disseminated by means of the press, with its hundred thousand wings, to the four winds of heaven, it becomes a recorded fact, more durable than the sculptured marble, or the monuments of a nation's history, accessible and free to all alike. Who with the least public spirit or private enterprise can forego that greatest earthly pleasure we possess, the glorious privilege of *reading* and conversing with the great, the good and the wise of all time past—settling within ourselves a well grounded system of religion, morals, theories of government, and the best plans for pursuing our daily avocations of life? We are not one of those, and from our heart we pity the man who is deprived of this privilege, or who possessing it, is devoid of this taste and pleasure. If the exertions of the press are worth nothing to the agricultural community, the *grumblers* are right, and reason is a bubble. Let chaos come again and universal darkness reign supreme.

We humbly conceive that a contrary opinion will prevail.

A well conducted agricultural paper, with its editorial, its communications and selections, embracing the whole talent of the country, are so many individuals arrayed with their arguments ready for combat with any antagonist; and the reader may compare, discuss, digest, or refute, in his own mind, or with his pen, as with so many friends and neighbors; and among some of his paper opponents he may find his equal and even his superior, from whom it would be no disparagement to be instructed.

We trust that the civilized community in the nineteenth century are too well informed, to need the wear and tear of much quill timber, to convince them of the value of Agricultural Literature.

We desire to remind the farming interest that the State fair for 1843, is to be held in this county, at the city of Rochester, and that it will require no little exertion and liberality so to conduct, and bring out the resources of the country, as not to disgrace the far-famed Western District. It is not the county of Monroe alone, to whom this appeal will be made, but to the whole western population. The premiums offered will be on a scale commensurate with the ability and resources of the State; and yet probably the laboring oar will be put upon us both as to funds and the *materielle* to make the exhibition respectable. It is proposed to merge our County Society, its funds and members, in the State Society, and to declare no county premiums, allowing every member to compete for the larger bonus of the State Society.

Unless the farming, mechanical and commercial interests come forward freely and liberally, we have some fears of the ability of the managers to do the thing in a style and order that shall be noted in after times, as the *Banner Agricultural Fair of the West.*

L. B. LANGWORTHY, *Cor. Sec'y.*

REPORT OF COMMITTEE ON GRAIN CROPS.

The committee on Grain Crops beg leave to report, that there were two applications for premiums on Indian Corn, two on Oats, and one on Barley—all of which were highly creditable to the competitors.

They award accordingly as follows:—

The first premium on Corn, to John McGonegal of Irondequoit, for a crop of two acres and ten rods, averaging more than 82 bushels per acre, the first premium of $7.

To Lyman B. Langworthy of Greece, for a crop of Corn on two acres, averaging 52 bushels per acre, second premium of $5.

To George Sheffer, for a crop of Oats on nine acres, averaging 91 bushels and 28 lbs. per acre, the first premium of $5.

To Rawson Harmon of Wheatland, for a crop of Oats on six acres of land, averaging 77 bushels and 17 lbs. per acre, the second premium of $3.

To Robert C. Brown of Greece, for a crop of Barley on $6\frac{6}{8}$ acres, averaging 46 bushels to the acre, a gratuity of $2, as no premium was proposed for this crop.

J. McGonegal's Crop of Corn.

The land on which I raised the corn that I offer for premium, is a dry, loamy soil, and has been mowed the last three years. It has not had any manure on since I owned it, which is nine years. It was plowed but once, about the first of April. It was harrowed down smooth, and furrowed both ways, at three feet apart, and planted immediately after, which was on the 7th day of May. The corn was yellow, of 10 and 12 rows, rolled in plaster before planting. I plowed two furrows to a row, and hoed about the 10th of June. In about 10 days I plowed it again, two furrows to a row. About the 5th or 6th of July, I plowed again, two furrows to a row, and hoed. On the 22d and 23d of September, I cut up the crop by the ground, and set it up in bunches. It was husked between the 20th and 30th of October.

The whole expense was $19.75.

The product of 2 acres and 10 rods, is 175 bushels and 61 lbs.—making 85 bushels and 19 lbs per acre.

The corn was measured by weighing, allowing seventy pounds in the ear to a bushel. The quantity of seed used is not exactly ascertained, but supposed to be about half a peck to the acre, allowing an average of four to five kernels to a hill, and wishing never to have more nor less than four plants to a hill.

JOHN MCGONEGAL.

Lyman B. Langworthy's Crop of Corn.

AT 70 lbs. per bushel of ears, the weight prescribed by the Society as a standard, the crop would yield at the rate of 55 62–70 bushels per acre.

The soil upon which the crop of corn was raised that is offered for a premium is sandy, and is a part of the celebrated Ridge Road, upon which is a young orchard, 5 years from the nursery.

Previous Crops.—The present crop is the 5th in succession of the same kind, having this and every other year had about 15 wagon loads of fresh yard manure per acre, plowed once, and marked out one way with a corn plow, ridged the other, and planted on the ridges, which I consider equal to another plowing, as it mixes up the manure, brings a portion to the surface within the reach of the young plants, and by being raised a little, allowing them to receive a greater portion of heat in the early part of the season.

The kind of seed used was the 12 rowed Dutton. It has been grown some years in the neighborhood of 8 rowed corn, which causes it to produce rather more than half of that kind, although the 12 eared rows have always been selected for planting.

After Culture.—Before the first hoeing one-third of the field was dressed with plaster, one-third with plaster saturated with stale urine, and one-third with strong house ashes. I saw but little difference in the appearance of the plants; if any one part had the advantag e, it was that part that was ashed.

It was hoed twice after the plow, and the last time it was hilled up rather more than was my common practice, on account of the cold and unfavorable weather, (a course that I would not advise for a good warm or dry season.) The crop ripened well; there was not one soft ear. The fault of the shortness of measure this year appears to be for want of setts on the stalks. I should think fully one-third of fine long thrifty stalks were without ears. I do not offer this crop as any thing extraordinary, even for this year; but to show my good will to the cause, being perfectly content to be exceeded in quantity, though not in good will to the Society.

L. B. LANGWORTHY.

Robert H. Brown's Crop of Barley.

The land is a loam, inclining to sand. The previous crop was corn and potatoes. It was manured with 15 loads per acre of coarse barn yard manure. The land was plowed for barley about 1st April, and plowed again 10th May; harrowed and sowed immediately with three bushels of four rowed barley. The seed was steeped in strong brine and limed previous to sowing, and dragged in. The crop was harvested about the 1st of August. The yield on $6\frac{42}{100}$ acres, was 294 bushels.

Value of crop, ...	$110 25
Total expense, ...	77 38
Clear profit, ...	$32 87

The land upon which the within crop of barley was raised, is situated in the town of Greece on the Latta road, about 1¼ miles from

Lake Ontario, and is of a quality that would be called a loam or clay. The said land has been tilled for several years past. Three years ago it was sown with barley after corn, then wheat after barley, and corn after wheat; manured with 15 loads to the acre when planted with corn and potatoes. This year plowed twice, and sowed with barley after corn and potatoes.

ROBERT H. BROWN.

Oat Crop of Rawson Harmon, Jr.

Description of the soil and culture of the crop of oats I offer for premium, on 6 acres and 46 rods. The soil is part a gravelly loam, and part a sandy loam. The stone used in building 40 rods of fence were taken from the field in the spring of 1841. It was clover ley. I spread on it thirty loads of long manure per acre, which was made in the cattle and sheep yards during the previous winter. The land was plowed once and harrowed once; one half of the piece was after corn, and the other half after potatoes. The corn and potatoes were a fair crop. The land was plowed in the second and third weeks of April, 1842. The seed sown was 2½ bushels to the acre of the Scotch potatoe oats, and sown with Hatch's Grain Sower. It was harrowed with a thirty toothed double harrow, once each way. The first week in August the oats were ripe to cut. On the gravelly soil they were cradled; on the other part reaped, on account of a storm which blew them down, causing a great loss by their shelling out. There were 32 double horse loads. The product was 487½ bushels, being 77 bushels and 17 lbs. per acre.

Total expense of crop, $44.57.

RAWSON HARMON, JR.

REPORT OF THE COMMITTEE ON ROOT CROPS.

The Committee on Root Crops respectfully report as follows:—

On Potatoes—1st premium $5, to Geo. Sheffer of Wheatland, for the best acre, 400 bushels and 10 lbs.

2d premium $3, to Robert H. Brown of Greece, for the next best, 388 bushels and 60 lbs.

Carrots—1st premium $5, to Wm. Otis of Gates, for the best ¼ acre, product being 315 bushels.

Mangel Wurzel—1st premium $5, to George Sheffer of Wheatland, produce being 1,220 bushels to an acre.

Sugar Beet—1st premium $5, to George Sheffer of Wheatland, product being 955 bushels to an acre.

MONTGOMERY COUNTY AGRICULTURAL SOCIETY.

THIS Society held their second annual Fair in the village of Fonda, on the eleventh and twelfth days of October last. The numer-

ous articles presented were worthy of notice. The large concourse of people in attendance, and the interest, zeal and good feeling which all seemed to manifest in behalf of the Society, we regard as the surest harbinger of its future success and usefulness. On the evening of the eleventh, an able, interesting and appropriate address on agricultural pursuits, and other matters connected with the Society's interest, was delivered by John I. Nellis, Esq. of St. Johnsville, at the Court House, to a large audience, and was listened to with the most profound attention. Notwithstanding the limited means of the Society, a numerous list of premiums were awarded. Many horses of different grades were offered for competition, some of which were very serviceable, denoting both durability and action.

The competion in cattle was large, and qualities very good, they being mostly of improved breeds, such as the Durhams, Devonshires, &c.

Swine—The competition not large, but the quality good, they being the common, improved by the Berkshire, and the Berkshires.

Sheep—The competition not large, yet those exhibited were an honor to their owners and to the Society, being of the Bakewell breed.

There were some plows presented by Mr. Chase of Amsterdam, that I consider worthy of special notice.

Several specimens of butter and cheese were presented, of the very finest quality.

But few specimens of grain and produce were allowed to be examined for the premiums, in consequence of the applicants for premiums on grain and produce not having conformed to the provisions of the act in relation thereto.

At the close of the Fair on the twelfth, the election of officers of the Society took place, and the following named persons were elected for the ensuing year:

Simeon Sammons, President, Fonda.

Lewis Averill of St. Johnsville, and Isaac Jackson of Amsterdam, Vice-Presidents.

Richard H. Cushney, Secretary, Fonda.

George Gortner, Jr. Treasurer, Canajoharie.

Peter H. Fonda, James McIntyre and J. V. A. Wemple of Fonda, Executive Committee.

Cornelius Van Derveer and W. U. Chase of Amsterdam, James Lansing Jr. and Abraham P. Graff of Mohawk, George Wagner and Edward Walter of Palatine, Abraham Smith and Josiah Nellis of St. Johnsville, Charles Lintner and Hale Shuler of Minden, Jeremiah Gardner and Morgan L. Harris of Canajoharie, John L. Bevins and Henry Voorhees of Root, Erasmus Barlow and Isaac Frost of Charlestown, Abraham V. Putnam and John C. Yost of Glen, George Howe and Cornelius Phillips of Florida, Directors.

TUNIS I. VAN DERVEER.

Amsterdam, Montgomery Co. N. Y.

NIAGARA COUNTY AGRICULTURAL SOCIETY.

At a meeting of the Executive Committee held at Lockport March 29, 1842, it was resolved that a list of premiums be offered to the members of the Society at the next annual meeting, varying from 50 cents to 20 dollars, and extending to 131 objects, and embracing cultivated farms, reclaimed lands, kitchen gardens, cattle, sheep, swine and horses; wheat, corn, oats and barley; potatoes, carrots, ruta-baga, sugar beet, mangel wurzel and onions; flax, clover seed and silk; apples, pears, quinces and grapes; butter, cheese and honey; plows, harrows, &c. &c. On household manufactures—flannel, woollen cloth, counterpanes, bed-blankets, carpeting and hearth-rugs; woollen stockings, socks, mittens and yarn; bonnets and caps.

At a subsequent meeting held on the 23d August, it was resolved that the annual cattle show and fair be held at the American, in the village of Lockport, on the 18th and 19th days of October, 1842; that the first day be devoted to the cattle show, and the following one to the exhibition of domestic manufactures, &c. That the Executive Committee of each town be required to procure signatures to the constitution and funds for the Society. That a premium of $5 be paid on corn-stalk sugar. The committees for awarding premiums, also a committee of arrangements, were appointed. The cattle show was held on the 18th October. The morning commenced with *heavy rain* and continued until the afternoon, notwithstanding which, there was a general attendance. The show of animals was numerous and highly respectable in numbers, grade and appearance, affording evidence that our farmers are alive to the improvements in cattle husbandry. The cattle exhibited were the full-bred Short Horn Durham, Devonshire and native breeds, with numerous grades of each. Several specimens of which would not suffer in comparison with the best animals in the State. The number of horses on the ground was numerous, 25 of which were entered for premium, and better pairs of matched horses for farm work, also two and three year old colts, can hardly be found. The swine exhibited were numerous, consisting of Berkshires, Leicesters, China, &c. showing that our pork makers understand their interests. Of sheep, first rate specimens of Dishley, Cotswold, Leicester, South Down and Saxon Merino, obtained much commendation.

At 4 o'clock, P. M., the members of the Society repaired to the Congregational church, and listened to a most admirable address from the Rev. Henry Colman.

The *fair* for the exhibition of household manufactures, &c. was held on the 19th, and was numerously attended. The show of vegetables was such as to prove that the soil and cultivation of the Cataract county, are not surpassed any where. As fine *wheat* as can be found in the world, producing 52¼ bushels per acre; corn 107½, and barley 57½ were shown. The various roots, such as potatoes, beets, carrots, &c. were admirable. The show of fruits was excellent. Samples of butter and cheese were numerous, and of a superior quality. The

ladies of the farm house graced our numerous assemblage not only with their presence, but also with the work of their hands. The exhibition of carpets, flannels, woolen cloths, stockings, mittens, hearth rugs and needle work, were all respectable and much admired.

We do not hesitate to say, the formation of the Society, aided by the munificence of our Legislature, has already greatly improved our agriculture.

The election of officers for the ensuing year, which took place on the day of the Fair, resulted as follows: William A. Townsend, President; Joel McCollum, Secretary. Executive Committee, three for each town in the county.

Lockport, October 22, 1842.

The Society met, per previous resolution, to attend the plowing match.

Three competitors entered the lists. The work, ¼th of an acre, was performed within an hour, in a superior manner; and the first, second, and third premiums were accordingly awarded.

WILLIAM A. TOWNSEND, *President.*

Lockport, December 31, 1842.

Mr. Wm. Freeman raised 157½ bushels of wheat, on three acres. Soil, sandy loam; in peas previous season. Fifty loads of manure spread on the land, and once plowed. Seed, six bushels, sown about the middle of September. Cost of crop:—manuring, $5.00; plowing and sowing, $6.00; seed, $6.00; harvesting and threshing, $10.00; marketing, $5.00; total, $32.00—equal to twenty cents per bushel.

Mr. Thomas Kilborn raised upon 6¼ acres of land, 176 bushels of wheat; averaging 27 bushels per acre, at a cost of 25 cents per bushel. It was sown after spring crops, and the expenses stated as follows:—4 days plowing, $8.00; 2 do. harrowing, $4.00; half a day rolling, $1.00; seed 10½ bushels, $10.50; sowing, 75 cents; harvesting and threshing, $20.50; total, $44.75.

Mr. J. Gaunt raised 55½ bushels by measure, or 57 bushels and 15 *lbs.* by weight, of barley, on one acre. The ground was once plowed, and twice harrowed after the seed; three bushels were sown.

Mr. Peter Hess had 39¾ bushels barley from one acre and eight rods. Land, a "stony beach and maple loam," in corn the previous year; plowed once, and sowed with 2½ bushels seed.

Mr. Asher Freeman raised an acre of Indian corn, as follows: soil, a clay loam, an old pasture, once plowed, and thoroughly harrowed; furrowed three feet apart one way, by one the other; planted three kernels in a hill, and twice hoed. Harvested one rod; shelled and weighed the same, and found it to weigh 37½ pounds, which would give 107½ bushels per acre. A very unsafe way to ascertain the product from an acre.

Mr. S. Hess' acre of corn produced 169 and a half bushels of ears, which, allowing two bushels of ears to make one of shelled corn, would give 84¾ bushels. It was planted on ground in corn the previous year; plowed in the fall, and again in the spring, and twice

harrowed; without manure either year. Rows about three feet apart each way.

ONEIDA COUNTY AGRICULTURAL SOCIETY.

A brief abstract of the transactions of the Oneida County Agricultural Society for the year 1841, was furnished you by the corresponding officer of the Society, in which the Society was represented as being in a flourishing condition and exerting a favorable influence upon the agriculture of the county. It gives me great pleasure to be able to inform you that the hopes of the friends of agriculture in this county have been more than realized in the success which has attended this Society through the seccond year of its existence. The fair of the society held in October last, was truly a splendid exhibition, and one which reflects the highest credit upon the enterprise of the farmers in the *empire* county, and we indulge the hope that our Society now rests upon a basis which will not be shaken by the few who still persist in their opposition to Agricultural Societies. The amount of money received from the State is two hundred and fifty-five dollars, to which the citizens of Oneida have added, by voluntary contributions, three hundred and four dollars, making the amount of funds at the disposal of the society, six hudred and fifty-nine dollars. Of this amount forty-four dollars have been appropriated to the current expenses of the Society, and the balance of six hundred and fifteen dollars has been paid in premiums to the successful competitors at the Society's exhibition.

The by-laws of the Society are such as to require a statement in writing and verified by the oath of the appplicant to accompany every application for a premium, and it is believed that, in this respect, the rules of this society are such as will meet the approval of the farmers of the county. The accompanying statements will show the method of feeding the different animals, and mode of cultivation of the crops on which premiums were awarded by the Society at the last fair. Your obedient servant,

ELON COMSTOCK,
Cor. Sec'y Oneida Co. Ag. Soc.

Rome, Jan. 29th, 1843.

FIELD CROPS. From the several statements furnished, the following facts are obtained. It is proper to remark that the entire product, in each case, was measured by a committee appointed by the Society for that purpose.

WINTER WHEAT.—The two highest crops of winter wheat, were 24½ bushels and 24 bushels and 6 lbs. per acre. The first was from bottom land, previous crop spring wheat, with one plowing and 30

loads good manure—the second on clover ley, three plowings, without manure. Both sown from 5th to 10th Sept. at the rate of 1½ bushels per acre.

SPRING WHEAT.—The two highest crops were 31½ and 27⅞ bushels per acre. In both cases the crops were taken from ground in corn the previous year, once plowed—2 bushels seed sown on each acre. In the first, 30 loads of manure to the acre were applied—the last, without manure.

BARLEY.—Mr. H. Rhodes, Trenton, received a premium for 64 bushels of Barley from one acre. Soil, strong tenacious mold—in corn the year previous. Plowed in the fall and also once in the spring, 7 inches deep—3 bushels seed sown 16th May. No manure used. The second premium was awarded to S. H. Church for 45 bushels 3 lbs. per acre. Soil, clay and gravel, in corn previous year—once plowed, 6 inches deep, without manure—2½ bushels seed sown 10th of May.

INDIAN CORN.—Elisha Pattibone's crop—grown on bottom land, barley stubble once plowed six inches deep, with 25 loads of manure—produced 95½ bushels per acre. Wm. Wright's acre—soil gravel, barley stubble, once plowed 7 inches deep, without manure—produced 91 bushels 8 lbs. S. W. Stoddard's acre—soil, gravelly loam, wheat stubble, once plowed and manured in the hill—produced 91 bushels 4 lbs.

OATS.—Andrew Vredenburg raised 112½ bushels on one acre. Soil, sandy loam—in potatoes previous year—once plowed, 6 inches deep—4½ bushels seed, sown 14th of May, without manure. S. H. Church raised 94½ bushels per acre. Soil, clay and gravel. Previous crop, spring wheat. Once plowed 5 inches deep, with manure. Seed, 3 bushels, sown 12th of May.

POTATOES.—Henry B. Bartlet raised 339 Bushels of potatoes on half an acre. Soil, loam, in corn previous year. Once plowed and harrowed—without manure. Three others procured from half an acre, 218, 216, and 196 bushels.

ONONDAGA COUNTY AGRICULTURAL SOCIETY.

THE doings of this Society are briefly summed up in the following manner: The Executive Committee held a meeting at Syracuse, in January last, and a list of articles were presented and agreed upon, on which premiums were to be awarded, and the different viewing committees were appointed. On the 22d of September, the executive committee held another meeting to make the necessary arrangements to hold a Fair.

On the 5th of October, the Society met and held their Fair, which closed on the 6th, at night.

The following is a list of officers chosen for the ensuing year:

William Fuller of Skaneateles, President; Silas Cheesbro of De Witt, 1st Vice President, and Fletcher Woodward of Camillus, 2d Vice President; Enoch Marks of Onondaga, Cor. Secretary; Chester Moses of Marcellus, Rec. Secretary; Thomas A. Smith of Syracuse, Treasurer; and an Exective Committee to consist of one member from each of the towns in the county.

Whole number of members of the Society, about 400.

Amount of money contributed,.....	$208 00	
" received from the state,.....	204 00	
		$412 00
Paid in premiums, &c.....		411 25
Balance on hand in the Treasury,.....		$0 75

WM. FULLER, *President.*

General observations on the Fair.

The whole number of animals that were registered for premiums, were as follows:

26 pair of working oxen, in yokes; 9 pair of steers, matched; 70 cattle of other descriptions; 7 pair of work horses, and over; 40 horses of other descriptions; 129 sheep, and about 70 hogs.

The working oxen, as the committee report, "were so generally good, that it was somewhat difficult to decide to which the premiums ought to be awarded; and the steers were believed to give great promise of future profit. Among the cattle, were some fine Durhams from the herds of W. Fuller, W. Cook, and others. The show of sheep was highly creditable; coarse, middle and fine wooled sheep were all represented, remarkably good, and by far exceeding any exhibition heretofore held in the county. Many of the horses were fine, but it was thought by good judges, that the colts were of a very promising character, well calculated to make serviceable horses, and that they showed a decided improvement in horses throughout the county. The swine—this "interesting family," were well represented in all their various conditions of life, from fat to lean, from young to old, male and female, from the round, plump, well-conditioned, well made hog, to the more gaunt and lean kind; on the whole, showing an assemblage that the farmers of Onondaga may well be proud of. The amount of dairy products, and of household manufactures, was small. It is to be hoped that the ladies will not permit an omission of this kind again to happen; an exhibition of the products of their skill might easily have been given, which would have added increased interest to the Fair, and have proved highly beneficial to the exhibitors. Will the ladies of Onondaga ever learn that to be valued they must be useful, and if they are not industrious and useful, they cannot nor will not be respected.

REPORT OF COMMITTEE ON FARMS.

The Committee on farms and growing crops report:—That they have had the pleasure of viewing but four farms by request, and very much regret that there is so little interest felt and manifested by the farmers of the county of Onondaga, as to create no more competition in the honorable and pleasant business of tilling the soil; a soil not surpassed in goodness by any county in the Empire State.

The attention of your committee was first called to view a field of corn in the town of De Witt, owned and cultivated by Mason & Elbridge Kinne, containing 13½ acres. The land, before fitted for the corn crop, was 7 acres clover, 5 acres wheat stubble, 1½ acre of corn hills, plowed once and well harrowed, and the whole covered with a light coat of barn-yard manure broad-cast. Corn planted about the first day of May, in rows both ways, 3½ feet apart; cultivated by passing a cultivator between the rows each way, then dressed with the hoe three times; the last time about the 20th of July. No hills were made about the corn; about a table spoonful of equal mixture of plaster and ashes was applied twice with good effect; and your committee are unanimously of the opinion, that the young men have done themselves much credit as practical farmers in cultivating the field of corn above referred to, which was not entered for premium. Your committee would earnestly recommend to all young men to do likewise, and by so doing relieve the country from its present distressing embarrassments.

The first farm your committee had the pleasure of viewing is owned by Silas Cheesebro, in the town of De Witt, about 2 miles from the village of Syracuse, containing 180 acres of first rate land; 150 acres under good and profitable cultivation. Your committee are of opinion, that better farms are rarely to be found in this county. Mr. Cheesebro's arrangements, as an intelligent and thriving farmer, are bright examples for the industrious agriculturist to follow.

Mr. Cheesebro's farm is divided into fields averaging about 14 acres, enclosed by good cedar and chestnut Virginia or worm fence. By means of lanes most of the fields are accommodated with an abundance of good water. The growing crops, and crops that were harvested this year, were very good. Wheat, 25 acres, mostly raised on fallow land, very little injured by rust; 27 acres in fallow, in good condition; 21 acres of meadow, very nice, producing in the opinion of your committee not less than 2 tons of good clover or timothy hay per acre; 10 acres of corn neatly cultivated, by removing all the weeds from among the corn without making any hills—and your committee would reccommend to the corn growers of this county to have the earth as nearly level as may be at the last dressing; 13 acres of potatoes very neatly cultivated, scarcely a weed appearing on the entire field. Your committee think that the average will not be less that 300 bushels per acre. Mr. C. says that he planted nearly every variety of potato that he could find in the country, and will be able to inform the potato growers of the county of the best varieties; 33 acres of clover pasture, giving support to five working horses, one breeding mare and two colts, one pair of fine working oxen, six cows,

two yearling heifers, two hundred sheep; sheared 164; product 500 pounds of wool, marketed at 31 cents per pound; and one two year old bull, native blood. Barns well arranged, with good and convenient cellars for the safe storage of roots, a very good fixture to a farming establishment. Farm house comfortably and conveniently arranged, with a good and productive kitchen garden, and as a pleasant and very agreeable appendage, a tastefully arranged flower garden decorates the front yard, an evidence of the ladies' good taste and industrious habits.

The second farm to which the attention of your committee was requested, is owned by E. D. Cobb, located near the village of Orville, in the town of Dewitt, containing 103 acres; 97 acres neatly and systematically cultivated and impoved under the following divisions or arrangements: 15 acres to wheat, 9 acres to corn, 4 acres to barley, 6 acres to oats, 7 acres to peas, 2 acres to potatoes and 8 acres to meadow; 30 acres of good clover pasture, and 10 acres in fallow. All of the above named crops large in growth and of good quality. Mr. Cobb adheres strictly to the rotation system of cropping, and with good success. Stock on the farm consists of five good, serviceable work horses in good condition, 4 cows, 2 yearlings, 100 sheep of the Saxony blood—sheared 84; product 274 pounds; sold at 45 cents per pound in exchange, and 4 Berkshire hogs in pasture, in fine condition. Mr. Cobb informed your committee that he plowed in the seed wheat on 7 acres of his fallow in the fall of 1841, about the 1st day of September, and the remaining 8 acres in fallow he sowed with the same kind of wheat about the 6th of September, and harrowed in the same quantity of seed in each case. The soil was the same, but the product was widely different. The part plowed in produced only about half as much as that harrowed in, and the quality not equal. Therefore your committee are of the opinion that harrowing in seed is the preferable method.

Mr. Cobb's buildings consist of one good and well finished farm barn, 41 feet by 31, and one shed with hay loft, 70 by 24; one sheep shed, 30 by 16; dwelling house, 20 by 48, two stories, with a wing 20 by 30; cellar 20 by 24, the whole finished very neatly from top to bottom, and all necessary outhouses and yards neatly and tastefully arranged; and finally every thing about the establishment exhibited neatness and comfort, and if attended with good health presents domestic happiness nearly approaching perfection.

The third farm your committee visited, is owned by H. Avery, in the town of La Fayette, containing 145 acres, 122 under good and profitable cultivation in the following order: 24 acres to wheat, 18 acres to barley, 5 acres to corn, 1 acre to potatoes, 22 acres of meadow, 25 acres in fallow in fine condition, 27 acres of pasture, supporting in first rate condition, 2 good working horses, 25 head of neat cattle, 44 sheep and some hogs. Mr. A.'s farm is of a rich limestone soil, naturally productive, and aided by skillful farming produces very largely. He makes no use of plaster; thinks his soil is sufficiently able to produce without stimulating. Every thing in and about the establishment indicates contentment and domestic happiness. Mr.

A. farms according to the rotation system, and recommends that system to the cropping agriculturist as the most profitable and fertilizing mode of farming. He has improved his farm much in building good, substantial stone fences, and has about 500 rods of wall, and material for building more easily to be obtained. His fixtures are good and well arranged, and your committee are of opinion that in him we have an example for good farming and domestic economy, seldom equaled.

The fourth and last farm your committee examined by request is owned by Enoch Marks, in the town of Onondaga, near Navarino, containing 140 acres of land; 110 acres in a high state of cultivation; soil mostly a sandy loam and muck; the central part of the farm naturally springy or wet. This Mr. M. has effectually reclaimed, and converted into very easy, productive plow land, by very judicious underdraining. He has about 1100 rods of stone underdrain, that takes from the surface all the cold spring water, and conveys it to some convenient place for discharge, where it forms good watering places for cattle. His farm is divided into fields of eight acres each, fenced with chestnut rails in Virginia or worm fence. He follows very strictly and tenaciously the rotation system of farming. His method of farming is to use each field in its turn for grain, meadow and pasture. Wheat is usually raised on summer fallow, about fifteen acres, by plowing two or three times and dragging or harrowing as many times. Sown about the first of September, nearly two bushels per acre. About ten acres annually sowed with one plowing after peas. Peas are usually sown by once plowing sward land, harrowing and rolling. Mr. M. uses all the barnyard manures on the lands planted with corn and potatoes. Uses plaster plentifully yet profitably. Mr. M.'s motto is plow often and seed often and plentifully with clover and timothy. Uses two bushels of plaster per acre on grass. Crops thirty-five acres of wheat; injured some by rust. Peas, eleven acres, good; eight acres of oats, very large; four acres of corn and potatoes; fourteen acres of meadow, grass light; Mr. M. says in consequence of a departure from his general rule, having mowed the ground too long. Stock kept on farm, eight neat cattle, four horses for work, eight hogs and 224 fine wool sheep. Grain barn forty by fifty, with twenty feet posts, a good and convenient basement and root cellar, all nicely finished. Other buildings comfortable. Mr. Marks may be considered as having caused two blades of grass to grow where one grew before.

After closing our view at the last mentioned farm, we took our friend Marks in our carriage and proceeded to Otisco, for the purpose of making a short visit to one of the editors of the Cultivator, (Mr. GAYLORD.) We found him at his residence, which is of the cottage kind, of an antique appearance; and is surrounded by a fine grove of trees. Within was neatness, convenience, sociability, and a large library of useful books. We were highly gratified to find him practicing what he preaches, viz: that men should live plainly, prudently, and within their means. This has always been the recom-

mendation of the Cultivator, and in this situation we found one of its editors.

Thus, after a ride of three days, we made our way towards home, well pleased with the performance of the duty assigned us. Although the committee receive no daily fee, they feel well paid in the personal examination of improved implements, and the manner in which different persons manage their farms and business, besides meeting with a most hearty welcome among our brother farmers. The Committee award to

Enoch Marks of Onondaga, the first prize of $10.
E. D. Cobb of De Witt, the second prize of $8.
Harvey Avery of La Fayette, the third prize of $6.

All of which is respectfully submitted.

H. P. Bogardus,
A. Eastwood,
S. M. Brown. } *Com.*

Mr. Woodward's Corn Crop.

I respectfully notify you, that I would offer the growth of one acre of corn for premium. The most part of the land has laid to pasture for two years, had a light dressing of manure, plowed once, made mellow by harrowing. Planted the first week in May, in drills three feet apart; thinned out at hoeing, so as to leave the stalks between four and eight inches apart, excepting a small part of it which was left thicker, and did not ear so well. Was plastered as soon as up, ashed after the first hoeing, and hoed three times, without much hilling. Corn husked in the lot, put in a wagon and drawn to the corn house, measured in a basket; and in measuring, three baskets were weighed, and the medium one shelled, and the amount by measure of shelled corn is 96$\frac{1}{2}$ bushels, and by weight fell short two pounds on a bushel. The above I believe to be correct.

F. Woodward.

Camillus, September 30, 1842.

Mr. Dox's Potatoe Crop.

I, Eldert V. W. Dox, of the town of La Fayette, in the county of Onondaga, in making claim to the premium for the best acre of potatoes in said county, for the year 1842, in pursuance of a requirement by the Agricultural Society in said county, do make the following statement:

Its treatment previous to 1841, I cannot state, as I came into possession of the premises in the spring of that year.

In 1841 it was well manured from the sheep and cattle yards, to an average depth of one and one-half inches over the piece—four acres; and one-half was then planted to potatoes, which yielded one thousand four hundred bushels. The ground was not stirred again until this spring, and not then until it had become perfectly dry.

About ten days previous to plowing, I sowed salt on the lot, at the rate of one barrel to the acre; plowed beam deep. I then planted three acres to potatoes again, of which the one on which I now claim the premium is one. The others, I think, will yield nearly as well as the one already dug. The potatoes on this acre are, to me, a new species, for which I have never yet heard a name. They are a light red, and of good size; they are excellent for table use, being preferred by the family to all the other varieties that I raised last year, viz:—Orange white, English do., Sardinia, round pink eye, June, black and Rohan. In selecting seed potatoes, I took those that were of good size and cut in two about three weeks before planting, in order to have the *cut part* coat over so that it would retain its moisture when in the ground. The ground was furrowed out with an instrument which I term a tripod, into three feet squares; the rows running S. W. by N. E., in order that they might have the more effect from the sun; two pieces were planted in a hill. Many of the potatoes were up when a frost came, and all of those were either killed, or produced but a few small ones to the hill. I think I could say with safety, that that has caused a decrease on the acre of from twenty to twenty-five bushels. They were hoed but once, and that much later than it ought to have been done, in consequence of the wetness of the ground; this took place when they were about ten inches in height. The product from the acre was 419 bushels.

E. V. W. DOX.

ONTARIO COUNTY AGRICULTURAL SOCIETY.

THE Third Annual Fair and Cattle Show of the Ontario County Agricultural Society, took place at Canandaigua, on the 18th and 19th of October. The inclemency of the weather during the two days, prevented many of the friends of the Society, from attending this meeting, yet an unexpectedly large number was present, and an increasing interest in its success and usefulness was manifested. The spirit of competition which existed, controlled and chastened as it was by harmony and good feeling, is not less favorable to the objects and aims of the Society, than characteristic of the enlightened and enterprising farmers of Ontario.

The first day of the meeting was devoted to an exhibition of domestic animals, and of these there was a much greater number than has ever before been collected together within the county, on a similar occasion, and it may be added, they were generally of improved stock, and in better condition. It was regretted at the first and second annual meetings of the Society, that the number of good horses exhibited was so limited; but on this occasion a large number of superior animals was produced, affording evidence that Ontario may successfully compare in this respect with the most favored counties in the State.

The second day was devoted to an exhibition of family manufactures, and articles of the mechanic arts for premium or show, to the plowing match, &c. Notwithstanding the unpropitious state of the weather, a large number of competitors, as well as spectators, attended, and there was no lack of interest or enthusiasm. The great variety, the excellence and beauty of the fabrics exhibited, reflected much credit upon the industry and skill of the manufacturers, and afforded a gratifying evidence of improvement in the various branches of domestic industry. To the taste and skill of the ladies, particularly, are the Society indebted for much that gave interest to the occasion. Their handy work was displayed in various forms where utility and ornament could be combined. The products of the dairy, the loom and the needle, gave pleasing evidence of their well directed industry, and some of their finer fabrics elicited universal admiration.

The plowing match took place on the morning of the second day, and as usual, attracted a large crowd of eager spectators. Twenty-three teams of all descriptions were entered, and at the close of the contest, among some eight or ten of the competitors it was doubtful to which the premiums would be awarded by the committee.

At two o'clock, P. M., the Society assembled at the court-house, to hear the annual address, to elect officers, award premiums, &c. The address was written by Myron Adams, Esq of East-Bloomfield, but owing to his indisposition, it was read by Rev. Mr. Stow of the same place. It was an interesting production, replete with practical teachings, and creditable to its author.

The members of the Society then proceeded to the choice of officers, and selected the following gentlemen for their officers for the ensuing year, viz:

John Greig of Canandaigua, President; William Ottley of Phelps, 1st Vice-President; Myron Adams of East-Bloomfield, 2d Vice-President; Peter Mitchell of Manchester, 3d Vice-President; Joseph Fellows of Geneva, 4th Vice-President; Charles Godfrey of Seneca, 5th Vice-President; Hiram Pitts of Richmond, 6th Vice-President; William W. Gorham of Canandaigua, Rec. Secretary; Oliver Phelps of Canandaigua, Cor. Secretary; James D. Bemis of Canandaigua, Treasurer.

ORANGE COUNTY AGRICULTURAL SOCIETY.

Abstract of the proceedings of the Orange County Agricultural Society, for the year ending October 12th, 1842, prepared pursuant to the last clause of the 4th section of the "Act to promote Agriculture," passed May 5, 1841.

THE funds at the disposal of the Society consisted of cash on hand not expended last year,..... $75 10
Cash received from members this year,..... 162 00
Cash received from the Comptroller of New-York,..... 152 00

Total,.....$389 10

In the month of August a notice was prepared by the Society, and published in all of the newspapers in the county, containing a statement of the time of holding the fair and cattle show, the premiums which would then be awarded, the rules and regulations for the fair and the committees of judges.

The fair and cattle show was held on the 12th day of October, and was attended by a large portion of the agriculturists of the county; there was a very spirited competition for nearly all of the premiums offered by the Society, and the articles offered for premium were generally esteemed by the committees of judges worthy of the favorable notice of the Society.

The whole funds of the Society were expended in the premiums awarded, but as a portion of the premiums have not yet been called for, the written statements required by the last clause of the 3d section of the statute above referred to, have not all been yet delivered to the president of the Society, and cannot therefore be transmitted herewith.

At the time of the fair, the Society, after adopting certain amendments to their constitution, and receiving an address from their president, proceeded to elect their officers for the ensuing year, when the following persons were elected:

Frederick J. Betts, Newburgh, *President.*

Aaron Van Duzer, Jeffrey Wisner, Lewis H. Roe, William Sayre, James R. Dixon, Henry Robinson, Jacob C. Tooker, Robert R. Thompson, John C. Webber, William S. Little, Thomas Van Elton, Roswell Mead, Jesse H. Bull, and William Jackson, *Vice-Presidents.*

John R. Caldwell, Samuel Wait, Jr. Alexander Thompson, Nicholas Dederer and John J. Heard, *Executive Committee.*

John Wilson, *Recording Secretary.*

Joseph W. Gott, Goshen, *Corresponding Secretary.*

Charles Downing, *Treasurer.*

It was then resolved that a committee of three in each town in the county be appointed to solicit subscribers to the Society, and that the assessors in each town, to be elected at the ensuing spring election, be requested to compose said committees.

The Society then adjourned *sine die.*

By the terms of the constitution, the annual meeting for the fair and cattle show, and for the election of officers, is to be held on the "Wednesday next before the full moon in October, in each year."

By order of the Society,

FRED. J. BETTS, *President.*

Newburgh, March 2, 1843.

Premiums were awarded on the following crops:

F. J. Betts, best acre of oats, 3 bushels sown, 77 bushels.

J. I. Dolsen, next best acre of oats, 4 bushels sown, 75 bushels.

F. J. Betts, best acre of yellow corn, 205½ bushels of ears.

S. J. Wait, 2d best acre of yellow corn, 93½ bushels.

J. I. Dolsen, best acre of Mercer potatoes, 260 bushels.

I. B. Sands, 2d best acre of Mercer potatoes, 330 bushels.

Mr. Betts' field of corn contained four and five-eighths of an acre, and 205½ bushels of ears was the average per acre on the whole piece. The corn was a cross of Dutton and the large Connecticut yellow corn, obtained by planting the two in the same hills; the seed thus obtained, produces a very handsome ear, which is earlier than the old fashioned corn, and yields well, as the product of my field shows. The whole crop is very handsome, and scarce an ear which is not fit for seed.

The field upon which it grew, was a tough greensward, plowed in the early part of February last, (when the ground was free from frost,) and manured with fifteen wagon loads per acre, of a compost of *muck and barnyard manure*, in about equal parts; the muck having been spread over the surface of the barnyard during the winter. In planting, the corn was covered with half a shovel full of the same compost, *instead of earth*, and two bushels of salt per acre was spread broadcast over the field, immediately before planting; the field was then cross plowed, and the corn planted about 3½ feet apart; it was twice plowed and hoed, and had the cultivator run through it once; it was very slightly hilled, and had about an average of four stalks left in each hill.

The oats were raised upon a field cultivated the year before in the same way, except that about *twelve* loads of manure per acre were used, instead of *fifteen*. The oats were sowed as early as the ground could be got in order for them, at the rate of *three* bushels per acre.

ORLEANS COUNTY AGRICULTURAL SOCIETY.

THE following is an abstract of the proceedings of the Orleans County Agricultural Society for the year 1842.

The Society has one hundred and eighty members. The amount of money contributed by them is $93.50; amount received from the State, $75.

The executive committee held their first meeting on the 10th of

January, 1842, at which time a list of premiums were agreed upon and published. The committee then adjourned to the 5th day of June following, at which time they again assembled and appointed committees in the several towns in said county, to examine farms and crops; adjourned to the 20th day of October, at which time the annual fair was held. A good collection of stock, and a variety of articles of domestic manufacture, were presented for competition: they were examined by the several committees and premiums awarded.

The Society elected its officers for the ensuing year, and adjourned to the 26th of November, at which time an address was delivered before the Society by Byron Dinsmore, Esq., and $152 was paid for premiums on farms, fences, cattle, swine, field crops, silk, horticultural articles, farming tools, &c., and $8.81 for printing, &c., and there is now in the treasurer's hands $36.56 unexpended.

Enclosed are some of the reports received from members who drew premiums, which I regret to say are not as full as we could desire, and are not such as the law appeared to require.

The executive committee have been unable thus far, to obtain such reports from the several viewing committees as appeared to them to be worthy of public notice; yet we do not despair of complying better with the law in future, as numbers of practical and intelligent men are beginning to give better attention to the subject.

Barre, December 24, 1842. CHARLES LEE, *Prest.*

COBBLE STONE WALL.—A premium was awarded to C. Robinson, for the best stone wall, which was built in the following manner:

The ground to receive the wall first made smooth by leveling cradle knolls, &c. Then place in the largest stones, selecting at the same time, the second size, or such as are suitable and of proper shape for topping stone. These stone should be long enough to reach entirely across the top of the wall as prepared to receive them, and they serve as binders.

When the bottom is laid, properly filled up and leveled, lay on a course of cedar sticks, split one-third of an inch in thickness, and as wide as the timber will make—sticks laid close together—then another course of stone—then sticks—then stone, and so on, tapering up double wall, six or seven courses, according to the size of the stone, 3 feet 8 inches, or 4 feet high, till it is fitted by leveling off and putting on the top course of sticks for the topping stone. Place them snugly on, chink up both sides well with small stone, and it is finished. I lay about three rods at a stretch, with lines. Face both sides; the sticks for each course corresponding in length exactly with the width of the course of stone on which they are to be laid. Width of wall on the bottom, 2 feet 7 inches. Height when completed, from 4 to 4 feet 6 inches. Stone so selected that the lower courses receive the larger stone, and so up, so that the last course immediately under the topping stone shall be composed of the smallest of the whole. The width of the top will be determined by the size of the stone, both topping and other. C. ROBINSON.

Nov. 26, 1842.

OSWEGO COUNTY AGRICULTURAL SOCIETY.

This Society, of which Wm. Ingell, Esq., of Volney, is president, paid out, at its annual Fair at Mexico, in October, 1842, about $200 in premiums on farms, farm produce, domestic animals, implements, silk, butter, cheese, &c. From the statements furnished, the following facts are gleaned:

Wheat.—The first premium for Spring Wheat was awarded to Calvin Goodwin of Mexico, who raised fifty-eight bushels on two acres and 64 rods of land. The second premium was awarded to C. G. Chillingworth, who raised 84¼ bushels on three acres and 28 rods of land.

Indian Corn.—The first premium on this crop was awarded to Wm. Ingell of Volney, it being the same crop on which he received the second premium of the State Society. For amount of crop, manner of culture, &c., see the report of the State Society, in the preceding part of this volume.

Potatoes.—K. E. Sanford received the first premium on potatoes, 338 bushels per acre.

Ruta Bagas.—First premium to Martin Wiltse—500 bushels per acre. Second premium to K. E. Sanford—435 bushels per acre.

Carrots.—First premium to N. Farnham—684 bushels per acre.

Mr. Severance's Farm Report.

Having entered my farm, on which I reside, for a premium, and the viewing committee having awarded me the first premium on farms, it becomes necessary, agreeably to the rules and regulations of your Society, for me to answer a variety of queries touching the management, productions and profits of the farm. I exceedingly regret that, owing to circumstances beyond my control, it is out of my power to give the particular information sought. In explanation, here, permit me to remark, that I have other lands adjacent to and cultivated by the same laborers as those employed on the premium farm; the lands occupied and improved the same as our farm, the produce collected and deposited in barns and granaries together; consequently the few answers I am enabled to give must be very general, and I fear unsatisfactory, and were I enabled to give answers to all the various interrogatories, I have not the vanity to believe that any very valuable information would be elicited; for it is well known to you, sir, that I am not a scientific man; that the little agricultural knowledge I possess, has been obtained by experience and observation, with very limited opportunities for acquiring knowledge from books; and I wish here frankly to state, that though, through the kindness and liberality of the committee, the first premium was awarded me, I think it was more owing to the modesty of others in not entering their farms, than of any particular merit in mine. Our farm is rather light and sandy, but by a course of management, it has become tolerably productive.

We endeavor to make the most of our manure, drawing it on to the

land in its raw unfermented state; applying it generally to green-sward lands intended for corn and potatoes, about twenty loads to the acre; in this way we are enabled to manure from twelve to fifteen acres yearly; the manure being laid in heaps, is carefully spread and immediately plowed in and not suffered to remain and dry in the sun; the furrows are then rolled, after which a fine double harrow is applied, first lengthwise of the furrow, then crosswise, till the surface is completely pulverized; the rows are then marked out as straight and uniform as possible, and it is then ready for planting. We cannot boast of having raised so large crops of corn and potatoes as some of our more favored fellow-citizens, never having raised, I believe, to exceed ninety bushels of the former, and a little more than four hundred of the latter. Our average crops of corn for a series of years, I think would not vary much from fifty bushels per acre and potatoes about 250 bushels; I doubt not, by doubling the quantity of manure, we might increase the crops from 25 to 50 per cent, but then it will be seen we could manure but half as much ground, which, in our opinion, would be poor economy, for the amount we apply makes the ground rich enough for wheat or oats, which generally follows the corn and potatoe crop, seeding with clover and timothy, say 4lb. of the former and 6lb. of the latter, and occupied again as meadow; at the time of seeding our sandy land, we apply a dressing of plaster, after which we apply the roller for the purpose of rendering the surface smooth, and the ground compact; when this course is pursued, we rarely fail of a good seeding. Our average crop of spring wheat is 18 or 20 bushels per acre, and of oats from 40 to 50. When treating of manures, I should have mentioned leached ashes, which, I believe, from actual experiment, are of more value when applied to light soils than an equal quantity of common barnyard manure; and yet we find them almost totally neglected, and suffered to waste at our asheries; they should be spread on ground prepared for corn or wheat, and harrowed, not plowed in; they may also be advantageously applied to grass ground, meadow or pasture, twenty or thirty wagon loads to the acre. We do comparatively nothing at dairying, keeping but a small number of select cows for the rearing of stock. Our calves are fed on new milk till ten or twelve weeks old; those kept on grass and hay generally sold at three years old: several of our steers raised in this way were butchered in September last, weighing over 750 lbs. each. Our cattle are the improved native breed crossed with the Devonshire; we keep from fifty to sixty head of cattle, three or four horses, sixty sheep, and eight swine; we cut annually from 75 to 100 tons of upland hay, meadows averaging from one to two tons per acre. Our method in fattening swine, is to steam potatoes and apples, mash them while hot, adding one eighth part meal. We have made a trial of barley, I believe twice, with no great success, and I think the soil in this vicinity is not congenial to its growth and culture. As to buckwheat, I can give no opinion from experience, never having sowed any; and from the opportunities I have had of noticing it when raised by others, I regard the crop with but little fa-

vor. We have had some experience in root crops, especially ruta baga and carrots, but do not think them entitled to all the commendation they receive in our agricultural journals. Near our cities, where hay always commands a high price, the ruta baga may be cultivated to advantage; but where the average price of hay is not over $5, I do not believe it profitable to cultivate the crop to any great extent. Carrots, though not so easily raised, I think a much more profitable crop, being worth twice as much to feed to stock as the ruta baga—being a most excellent article to feed to cows or work horses. As to our clear profits from farming, it is enough to say, "the deposites are removed." I have thus very generaly answered the several queries, though I trust frankly and honestly; and if I have contributed by it to the least advancement in agriculture, I shall be satisfied.

SETH SEVERANCE.

MR. LYON'S FARM REPORT.

In conformity to the rules and regulations of the Oswego County Agricultural Society, I, John W. Lyon, do hereby present to the official department of that Society an accurate description of my farm, situate in Hastings, on the stage road leading from Syracuse to Watertown, entered for a premium, and visited by Messrs. Allen and Merrian of said county, as awarders and judges of the same.

The management of fifty acres is thus:

Ten acres in corn; five after corn, and five on wheat and oat stubble. The crop suffered on account of the frost on the 6th of June; had no manures, save one acre, that was thin plastered only once; hoed twice; cut up by the ground when fit; average 25 bushels to the acre—250.

Four acres of oats, sowed after oats; seed, three bushels to the acre; no plaster used; seeded the same heavy to timothy and clover; had from the same, 50 bushels the acre; 200.

Seven acres in grass; upland without plaster; supposed to be about 10 tons.

Two acres and a half in barley, after corn; sowed two bushels of seed to the acre; got 70 bushels; it is supposed by neighbors, that the crop was benefitted by sheeping the same down after it had got up green. I think the same; I left them on the barley ten days; in that time it spread much; this crop was on worn out sand, so called.

Two acres in spring wheat, after potatoes; the potatoe land was made rich the year before with long dung; put two bushels of seed to the acre; got 40 bushels of wheat.

Two and a half acres in winter wheat, sowed after spring wheat; and although the crop was some injured by the timothy seeding and weevil, I had 28 bushels clean wheat; sowed 1½ bushels to the acre; no plaster used; the land gravel.

Eight acres in buckwheat, where my corn failed; sowed half bush-

el to the acre. I cut the most of it soon after it had turned brown; this did better than that which stood longer; had 160 bushels.

Four acres are in woodland; of which I allow no grown timber to be cut down while there is dry on the ground.

Seven acres in pasture; fed 4 horses, 3 cows, 36 sheep, the most of the season.

One acre in garden, not surpassed in the county, either in beauty or variety, as to shrubs or plants.

The other forty-four acres of my farm have been under nothing more than common tillage, worked on shares. My buildings have been arranged after the Buel plan: (See Buel's Cultivator.)

One acre in potatoes—one acre on sod, and one on stubble; planted in hills; seed cut; three eyes in a hill; hills three feet each way, and when up, covered over with long dressing. The sod was much the best; had in all 350 bushels.

I use about two tons of plaster per year, and all the manure I can conveniently obtain. My mode of applying dressing to the soil, is to draw it on to the land after it is plowed, and harrow it level, which covers the most of it up, and prepares it for present benefit. It should always be applied to the soil in the spring. Of saving, I am very particular, for there is nothing so poor as not to enrich the soil some.

The work of the fifty acres has been mostly done by myself and son, about 14. J. W. LYON.

OTSEGO COUNTY AGRICULTURAL SOCIETY.

THE following premiums, on Field Crops, were awarded and paid by the Otsego County Agricultural Society, on the 22d December, 1842—viz:

For the best acre of Wheat, to John W. Tunnicliff, Richfield, being 22 bushels and 40 lbs.

For the best acre of Barley, to Olcott C. Chamberlain, Richfield, 55 bushels and 35 pounds. Second best do. to George H. Derbyshire, Hartwick, 45 bushels. Third best do. to Franklin G. Dunham, Middlefield, 39 bushels.

Best acre of Oats, to Eliphalet Stickney, Hartwick, 84 bushels and 26 pounds. Second best do. to Franklin G. Dunham, Middlefield, 68 bushels.

Best acre of Indian Corn, to John H. Benedict, Otsego, 78 bushels and 21 lbs. Second best do. to George H. Derbyshire, Hartwick, 69 bushels. Third best do. to Eliphalet Stickney, Hartwick, 43 bushels and 24 lbs.

Best acre of Potatoes, to Olcott C. Chamberlain, Richfield, 320 bushels. Second best do. to Russell Warren, Otsego, 289 bushels.

QUEENS COUNTY AGRICULTURAL SOCIETY.

The Queens County Agricultural Society, was formed in October 1841, a constitution adopted and officers elected. The prospects of its usefulness at that time were very unfavorable, but little interest was evinced and only eighteen members obtained.

A part of the officers and a few other members by great perseverance and labor obtained a sufficient number of members (generally at one dollar each,) to warrant the board of managers in making arrangements for a fair in the then ensuing autumn, and in March last, they published a list of most of the articles that they would offer premiums on, such as *Cattle* of the various descriptions, and of the improved and native breeds; *Horses*, confined to studs that had been kept in the county the six months preceding the fair, and matched horses bred and owned in the county; *Sheep*, fine and coarse wooled and South Downs; *Swine*, *Butter and Cheese*, *Field Crops*, *Roots*, *Fruits*, *Honey*, *Seed Wheat*, &c.

The managers met as business required, and early in September, announced the time and place of holding the fair, and offered premiums amounting to $316, in money, and about $10 worth of books, and discretionary premiums on such agricultural products, household manufactures, and other articles as were worthy of encouragement. They also appointed the committees to award premiums, and to superintend, and agreed on the rules and regulations to govern the fair.

On the 13th of October, the fair was held at Hempstead, and premiums in money awarded amounting to $265.75, and $10 worth of books.

The whole amount of money received was $325, and the whole amount expended was $314.25 leaving in the treasury $10.75.

Accompanying this, are the statements received from those to whom premiums were awarded, and although not perfect, are the best we could get.

Effingham Lawrence.

Queens county, December 28th, 1842.

ON BUTTER MAKING.

Statement furnished the Queens County Agricultural Society, by Mrs. Isabella Stewart *of Jamaica.*

The following observations are the result of many years experience, and intended for families who make their own butter, and like it sweet, rich and to keep well.

It is presumed that every mistress of a house in the country, enjoins upon her domestics strict cleanliness in every thing belonging to the dairy; it is indispensable that every thing used for milk should be daily scalded, and well dried; the milk-room should be free from damp and bad smells; if the shelves, (which should be in the middle of the room,) have narrow, thin pieces of boards nailed on them

six or eight inches apart, to set the pans upon, the milk will keep longer sweet, and of course more cream will rise upon it than when standing on the shelf, as the air goes under the pans. Tin, or rather well glazed pans are better than wood, the latter being very apt to mold. The milk in summer will seldom keep sweet longer than twenty-four hours; it should be skimmed as often as the milk is thick, as the cream will very soon spoil if left on the milk; on no account should it remain longer than thirty-six hours if you want good butter; in damp, hot weather it will become musty and bitter, and spoil a churning of butter. Many dairy women think that once a day is enough to trouble themselves to skim milk—three times is hardly sufficient to examine it, and if thick to skim it without delay; put it into a stone jar, in which is a cream stick to stir it thoroughly each time cream is added; when enough is collected to churn, say two or three times a week, (if every day the better): in very hot weather place the cream-jar in the ice-house, or in a tub of cold water with ice in it, for a few hours, or all night, and churn early in the morning; the butter will come easily and be firm; wash it well with cold water and put one ounce of common table salt, well rubbed or rolled, to one pound of butter; work it gently with a wooden ladle, and in a wooden bowl; cover it, place it on the floor, which is best of stone or brick, and well cooled with water; in the evening it will answer to work it over, or the next morning early, but gently as too much motion will make the butter soft; put it into rolls for use or market, and place it again in a cool place; cold water or ice will harden it nicely for immediate use, but it the sooner becomes soft and oily when removed. Butter made in summer seldom keeps well; therefore it is hardly worth while to put it down for winter, but if necessary, oak or maple casks or tubs are the best to put it in; it should be pretty well salted and a cloth laid on the top of the butter and brine constantly over it. ' To make butter in winter is more difficult, as the cream requires the aid of heat, and it is difficult to get it of a proper temperature; the most certain method is to put about a quart of buttermilk into the cream-jar with the first cream; stir it well, cover it with a cloth to keep it free from flies or dust, and place it in a room where there is a fire, (but not by the fire)—by the time your next mess of milk needs skimming, it will be thick; after adding the cream, again mix it well—so on until you are ready to churn—if not then thick, place the jar into a pan of hot water, stir the cream until the chill is removed, set it aside until thick and cold, when you may churn it without trouble. Do not attempt to churn the cream while warm, as your butter will come too soon and be white and bitter.

After the butter is washed and salted, let it stand but a few hours in winter before working it over, as it becomes so hard that you cannot mix it properly; have your tub or jar well cleaned and scalded, put some brine at the bottom; then your butter, press it firmly and tight with your ladle, lay a thin cloth on the butter and cover it with brine; remove the cloth when you again churn; put down your butter; cover it again as before, and so on until full; keep it

well covered with brine and cloth; put on the cover of the vessel and keep it in a cool place. The butter will be as good in May, as when made. Milk will not keep as long in a cellar in winter as it will in an upper room, and is more easily tainted by mold or dampness; therefore it should be skimmed, certainly before it becomes spotted, say from twenty-four hours to thirty-six. Cream will certainly rise longer if the milk is undisturbed, but the richest and best cream is that which is obtained in the first twenty-fours hours; the butter of course is better although not so abundant. If cows are fed once a day in winter with carrots, sugar beets, or potatoes with plenty of good clover hay, their milk will yield yellow, rich, and fine flavored butter. It is not desirable to have new milk cows in winter, but sometimes is unavoidable; by the above management the milk may be useful if not profitable.

The butter herewith sent for exhibition is 11 pounds made in Jamacia, by Isabella Stewart, from the milk of two cows, one farrow, both nearly dry, in one week, from fourteen quarts of milk per day. The cows have had nothing to eat but what they found in the common pasture at this season. My milk room is a cellar room with a glazed window and a slat door opposite each other, with a hanging shelf in the center; the floor is paved with brick; an ice-house is at one end, communicating by a door and stairs; my milk pans are mostly tin, some earthen glazed; cream jar is stone ware. Churn is a common hand churn and small, so that if I felt disposed to do otherwise I must churn very often in summer. I always in summer have the churning done early in the morning in the cellar. At this season of the year, I churn, and also keep the cream jar in a room where there is a fire, but remove the butter to the cellar when washed and salted.

I keep butter in wood, in a cool dry place. The butter herewith sent was made within the last week at three churnings—is salted with common table salt, one ounce to the pound, and without saltpetre or sugar. I find my butter made at this season, just as this has been and put down in the same manner, (except in tubs that contain more, with brine in them just to cover the butter,) keeps as sweet and fragrant as it is at this moment; therefore, I have never found the necessity of using any other means to keep it, than the simple salt.

Good new made butter will continue so; poor butter needs many things to preserve it.

Jamacia, Oct. 12th, 1842.

RENSSELAER COUNTY AGRICULTURAL SOCIETY.

The first annual fair of the Rensselaer County Agricultural Society was held at the village of Lansingburgh, October 4th and 5th, 1842. There was at this fair an unusual display of stock, as well as

of domestic manufactures, agricultural implements, and the various other articles usually exhibited on such occasions. The crowds of visitors attracted by the exhibition, from this and the adjoining counties, sufficiently attested the deep interest of the farmer, and all classes of our community in the success and continued prosperity of the institution.

The reports of the various viewing committees, submitted to the Society at the fair, contained a great amount of interesting and valuable information, and two of them are here annexed.

REPORT OF THE COMMITTEE ON FARMS.

The committee would respectfully report, that the number of farms entered for examination was six.

Your committee commenced the performance of the duty assigned them on the tenth day of July, by calling on Mr. Abraham Knickerbacker of Schaghticoke, whose farm is situated in the valley known as old Schaghticoke, about one mile from the Hudson river, containing 330 acres of land, about 100 acres of which is bottom land, which has been cultivated more than a century and a half; and its present productiveness being evidence of its fertility under a good system of culture. Mr. Knickerbacker particularly called our attention to a field of wheat from which he took the last season two crops of clover hay of great burthen—the one in July, the other in September. Immediately after taking off the last crop, he plowed and sowed the same with wheat at the rate of nearly two bushels to the acre, the growth of which was very large and heavy, promising an extra crop, but we regret to learn since that it was much injured by rust. Mr. Knickerbacker's mode of farming is well systematized and praiseworthy; the remaining 230 acres being upland, about one half under cultivation and the rest covered with wood. The manner of cultivating his farm is such as is generally practiced by good farmers in that section of the county, being a rotation of crops, with clover every fourth year, and an annual top dressing with plaster, at the rate of about 1½ bushels per acre.

The out-buildings of the farm are numerous, large, and well arranged; also the dwelling-house, being the old family residence, under the modern improvements made upon it by its present proprietor, makes a very beautiful and venerable appearance. Mr. Knickerbacker informed your committee that it was his practice, on the first of April of each year, when he commenced his farming operations, to appraise his stock, farming utensils, and every kind of produce on hand, and by keeping debt and credit, at the close of the year he not only has the amount of the productions of his farm, but he is better able to review and improve his future operations—a course of proceeding which your committee would most highly commend.

By the within statement made to your committee of the productions of the farm of Mr. Knickerbacker, it is gratifying to learn that the amount of the productions of his farm, over and above all ex-

penses of cultivation, affords a generous remuneration for the capital invested in these times of low prices.

Your committee next called to view the farm of Daniel Fish, in the town of Pittstown, on the south side of the Hoosick river, containing about 220 acres—122 under the plow, 27 in meadow, and 78 in pasture and woodland. The greatest portion of this farm is composed of a gravelly loam, mixed with some sand and black muck, in swampy places. Mr. Fish has resided on his farm only four years. Its present appearance, in contrast with its former condition, is a pleasing evidence of the good effects of well directed skill and industry. Mr. F. called our attention to extensive underdraining, and the good effects of the same upon two fields which formerly were marshy waste land, which were now covered with very luxuriant crops of barley, oats, flax and potatoes. Mr. Fish has made great improvement in fences. We noticed a sod fence made over a field of wet ground, answering a double purpose, by also making a ditch in the excavation made for the fence. Mr. Fish pursues the usual course of rotation of crops, with manure, seeding and plaster, which, if judiciously done, is well adapted to the grain growing portion of our county, and will not exhaust, but increase the fertility of the soil. Our attention was called to a field of flax, to the cultivation of which much attention is paid in the above town. The manner of raising it is to take the ground on which corn or potatoes were raised the previous year, and prepared as for other spring crops; the usual quantity of seed per acre is about 1½ bushels, rendering a double profit from the seed and lint. The slow and disagreeable process of pulling by hand is about being obviated by a newly invented machine, worked by horse power, which is said to be equal to the labor of seven men; which, your committee not having had an opportunity of examining, are unable to describe. The buildings of Mr. Fish are extensive and in good order, having in view convenience and utility as well as appearance. The last though not the least pleasing to which our attention was called, was the garden, (an expression in relation to which may not be considered within the province of the duty assigned to us, but we cannot refrain from making a few remarks in reference thereto,) in which were combined the ornamental with the substantially useful, containing every variety of vegetables, shrubbery and flowers, and all arranged and cultivated, as your committee were informed, by Mrs. Fish, without the aid or assistance of man power—thus setting an example for the effeminate housewife worthy of all imitation, and more conducive to health and the comforts of domestic life than the silly fondness entertained by too many in the fashionable circles for shining gewgaws and gilded baubles. We here give an extract from the written statement made to your committee, of the kind of fence on the farm, the quantity of blind and open ditches made, and an estimate of the production of the farm the present season. He has made of open ditch, 240 rods; of blind ditch, about 500 rods; of fence, as follows: Of picket fence, 70 rods; of board fence, painted, 300 rods; common board fence, 150 rods; stump fence, 200 rods; sod fence, 40 rods; stone wall, 250 rods; rail fence, 500 rods.

The productions of the farm are as follows, some of them estimated by thrashing and others from appearance: 24 acres of wheat, estimated at 350 bushels, being nearly 15 bushels per acre; 16 acres of rye, estimated at 200 bushels, being 12½ bushels per acre; 38 acres of oats and barley, estimated at 1600 bushels, being about 40 bushels per acre; 8 acres of flax, the seed 10 bushels per acre; 10 acres of corn, estimated at 300 bushels, being 30 bushels per acre; 20 acres of buckwheat, estimated at 500 bushels, being 25 bushels per acre; 6 acres of potatoes, estimated at 800 bushels, being about 133 bushels per acre; of hay, 25 tons. Mr. Fish says he sells no straw from his farm, but uses all for fodder and manure. He plows from four to five inches deep, and says he has drawn large quantities of muck from his swamps on to his dry land, which has proved very beneficial. No statement made of the stock kept on the farm. Cost of cultivation, about $300.

Your committee, after leaving the farm of Mr. Fish, passed up the valley of the Hoosick river about eight miles, through a good farming country, and called at the residence of Gen. John J. Viele, who submitted to our inspection his home farm, lying in the town of Hoosick, on the south side of the Hoosick river, containing about 300 acres, 240 of which being under cultivation, the soil being a deep sandy loam table land, with a portion of bottom land along the Hoosick river. Mr. Viele called our attention to the general appearance of his farm and crops, which was farmer-like and well ordered. His crops on the ground, with the exception of corn and grass, were superior, which Mr. Viele attributed to his deep plowing, and mixing in part of the subsoil about once in four years, thereby increasing its fertility, and enabling the soil, by its depth and strength, to resist the attacks of insects and drouth, those common enemies to successful husbandry. The unfavorable appearance of his corn was caused by the backwardness of the season, and the ravages of the weevil and grub-worm, to prevent which is a matter of some difficulty. The best mode, in the experience of your committee, is to manure highly, and plant stubble land. The habit of feeding meadows in the fall and spring with sheep, as stated by Mr. Viele, was probably the cause of their light and backward appearance, and deemed by your committee as of doubtful utility. Our attention was called to Mr. Viele's clip of wool, which was very superior, and which constitutes one of the staple products of the above town. Mr. Viele has made substantial improvements in stone walls, stump fences, and underdraining. This farm, as a whole, makes a very good and practical farmer-like appearance, and its proprietor has exhibited a degree of taste highly commendable, in transplanting fruit and forest trees about his dwelling, and along the road side. No statement of the productions of this farm has been received by your committee.

Your committee next called on Mr. John Evans, in the town of Brunswick, about two miles east of the village of Lansingburgh, who submitted his farm to our view, containing about 120 acres, (100 under cultivation,) of rolling land, the soil of gravelly loam, mixed

with clay. Mr. Evans has resided on his farm four years, and has increased its productiveness three-fold by his system of manuring with bone manure, which he obtains in the manufacturing of glue, and applies it ground, at the rate of four bushels the acre. As a top dressing, he also applies the bones unground upon his meadow land, and rolls them down with a roller, which, from a barren and unproductive state, he has made to produce from two to three tons to the acre. Mr. Evans submitted to our view his improvod stock, consisting of yearlings, cows and calves, which we deemed very fine, and well worthy the attention of cattle growers. In the industry, perseverance and skill exhibited by Mr. Evans, we have a fulfilment of the old adage, that "industry and perseverance will prosper." He commenced without friends or capital—a stranger in a strange land—and in a few years has secured a handsome competency, with a prospect of extended usefulness; and we would modestly suggest to some of our inert young men, who, lounging away their time in our cities and villages, and who are strongly prejudiced against the use of the hoe and plow, to go and do likewise. No statement of the productions of this farm has been received by your committee.

Your committee next called to view the adjoining farm of Mr. John D. Vanderheyden, the former residence of the late Gen. Adam Yates, containing about 300 acres—250 under improvement. The soil is a gravelly loam; that part of the farm he cultivates is mostly rolling land—about 95 acres being meadow. The attention of your committee was directed to a field of wheat sown on ground where winter wheat was raised the preceding year, which appeared very promising. The treatment in preparing the ground for the second crop, was to burn the stubble before plowing. Your committee would likewise state Mr. Vanderheyden's practice in preparing his ground. For corn, he generally plants on clover sod; plows as late as from the 10th to the 20th of May, so as to turn under some coat of grass; plants immediately after his ground is prepared, and has not had his corn injured by worms since he has pursued this course, which he attributes to the green grass turned under, upon which the worms feed. Mr. Vanderheyden has succeded in obtaining running streams of water through all the lots on his farm, which your committee deem of very great importance—there being a natural stream running from east to west through the farm. A part thereof has been carried through an artificial channel through the south tier of lots and again discharged into the original stream on the southwest part of his farm; and in draining about ten acres of swampy ground on the north part of the farm, he obtained a sufficient quantity of water from the drains and ditches, through the same, to convey by a ditch through the central part of his farm, and to discharge into the before-mentioned natural stream, by deep cutting in a few places. The appearance of his crops on the ground were proof of a judicious course of cultivation. The fences were substantial and in good order, mostly posts and boards. The fields appeared clean from noxious weeds. The buildings were numerous: three dwelling houses, three barns with sheds and necessary out-houses, all in good order, and several recently built, and is

deserving of credit for the neatness and thrift exhibited about his premises. Mr. Vanderheyden applies all his manure upon his meadows, and seeds the land he tills with clover and herdsgrass, and gives it an annual top dressing with plaster; his depth of plowing is from six to ten inches. As to the expense of cultivating his farm, he employs one person in addition to himself and two sons, with additional help in haying and harvesting, amounting to about $75. Here follows his statement made of the produce of the farm for the present season:

In meadow,	95	acres,	estimated at	150	tons of hay.			
Winter wheat,	10	do	do	25	bushels per acre,		250	bush.
Winter rye,	34	do	do	25	do	do	850	do
Oats,	17	do	do	40	do	do	1080	do
Corn,	13	do	do	35	do	do	452	do
Potatoes,	15	do	do	200	do	do	3000	do
Buckwheat,	8	do	do	30	do	do	240	do
Fallow,	18	do						
Pasture,	30	do having pastured 9 horses, 30 head of cattle, 32 sheep and 14 swine.						

Your committee next called to view the farm of Isaac Akins, Esq. of Greenbush, which lies on the bank of the Hudson river, about two miles below the village of Greenbush, containing 320 acres; 160 of which are under cultivation, 115 in meadow, and 45 in pasture and under the plow. About one-half of the farm is low bottom land along the river, the soil alluvial—being overflowed every spring by the river, consequently wants no manuring or plowing. About 40 acres of the upland of this farm are in meadow, which Mr. Akins informs us he has for the last five years manured with about 40 loads to the acre, spread upon the surface. The soil of the upland is principally a sandy loam, the ridges occasionally mixed with a slate gravel. Mr. Akins had 10 acres of spring wheat and 5 of corn, which appeared very promising, and had sown 8 acres of buckwheat. Mr. Akins plows from six to ten inches deep, puts his manure on the surface and harrows it in. The kind of manure he has used for the last five years is principally from a distillery, mixed with his barnyard manure, and the quantity he puts on his plow land varies from 25 to 40 loads per acre, according to the quality of the land. Your committee found the farm of Mr. Akins in a high state of cultivation; the fields well arranged; the upland divided into suitable lots. The fences are principally composed of cedar posts and boards, and put up with a great deal of neatness and regularity. His barn and out-buildings are well arranged and substantially constructed—his barn being seventy-two feet by fifty, and with an open floor, the posts twenty-eight feet high, with a hay press underneath the open floor; his barn and out-buildings placed upon substantial stone walls and painted. Among the several out-buildings, our attention was directed to his shops for repairing the tools and implements on his farm, and the peculiar construction of a work-bench in his carpenter's shop, with some five or six drawers underneath for the reception of various tools. A place for every thing and every thing in its place. While here, a

neighbor of Mr. Akins submitted to our view a newly invented hay-press, and operating upon the lever principle, the utility of which had not as yet been fairly tested. If it should meet the expectation of the inventor, it must, from its simplicity, do away with the screw power. In the neighborhood of Mr. Akins we could not help but notice the good effect of example, like rays radiating from a center. We could here see an impetus given to improvement, showing conclusively that it is not alone our own advantage, but also the good that we do around us, which ought to stimulate our exertions in the improvement of our farms, and the advancement of our calling. Here follows a statement of the production of Mr. Akins' farm. In meadow, 115 acres, at two tons per acre, 230 tons; in spring wheat, 10 acres, from 20 to 25 bushels per acre; in corn, 5 acres, from 40 to 60 bushels per acre; in potatoes, 1 acre, fine growth; in buckwheat, 8 acres, fine growth; from 150 to 200 barrels of winter apples. Cost of cultivation about $400.

Your committee have seen with much regret, the alarming and rapid spreading of the Canada thistle through the county, and we would most earnestly request all farmers to unite in a war of extermination against that noxious and disagreeable intruder upon our farms. If we cannot at once destroy, we can at least check its rapid growth. Plowing once in four weeks, or cutting them frequently, so as to prevent them from getting a top during one season, will destroy them; and if that cannot always be done, they should at least be cut in season to prevent the seed from ripening.

Your committee feel constrained to acknowledge that in awarding the premiums, where the claims of competitors are so nearly equal, they feel the task to be one of some delicacy, but would beg leave to say that they have not, as a matter of course, awarded to those who cultivate the richest natural soil and produce the largest crops, but have been influenced by the mode of cultivation pursued to improve the soil, the general arrangement of the buildings and fences for farming operations, and the reclaiming of waste lands—not only causing two spears of grass to grow where but one grew before, but causing luxuriant crops of grass and grain to grow where marshy and waste swamps occupied the places before.

Your committee award the first premium on farms to Isaac Akins of Greenbush; the second to John D. Vanderheyden of Brunswick; and the third to Daniel Fish of Pittstown.

And we would recommend that in addition to the premiums now awarded on farms, there be a premium given hereafter for the best cultivated farm in each town in the county, provided the town has fifty paying members to the Society; and if the funds of the Society would not permit the addition, that some of the minor premiums be hereafter abolished, because an overgrown pumpkin, a mammoth squash, or a large cabbage head, can excite but little interest compared with the interest we think would be awakened among practical farmers by the above additional premiums.

And we would also recommend to the members of the Society who are not taking any of the agricultural papers of the day, to patronize

them, believing the valuable information contained in those monthly publications, would not only amply compensate every reader for the small expense of it, but would excite among the farmers of Rensseselaer county, a laudable desire to improve in the cultivation of their farms, in the raising of stock, and give the earliest information of the various improved labor-saving implements constructed and used in the cultivation of the soil.

All which is respectfully submitted.

MARTIN SPRINGER,
WILLIAM TELLER,
WILLIAM VAN VEGHTEN, } *Committee.*

REPORT ON HOUSEHOLD PRODUCTS.

The undersigned committee, to whom was referred the subject of household products, report that they have given this important subject all due consideration. Highly gratified by the many neat, useful and substantial articles submitted to their inspection, they have been led to desire more strongly than ever that domestic manufactures may be increased, and presented at the next fair in still greater number and variety. They are fully satisfied that the household arts are complicated, and still admit of valuable improvements from science called in as an auxiliary to ingenuity and enterprise. The attention of farmers and their households is earnestly invited to this subject.

The farmer who would enjoy comfort and plenty must have more to sell than he needs to buy; indulging in luxuries only when they can be purchased by the surplus produce of the farm, after his necessary wants have been supplied. That this extra supply can be secured to him by moderate industry skilfully applied, ought not to be doubted, and with it he could not fail to have means for purchasing the raw materials whenever demanded by the exercise of his skill in preparing household products.

Water power was first applied to the spinning of cotton in 1804. Prior to that time, a large part of our cloths were household manufactures. Many then thought the nation would be ruined by so serious an interruption of spinning and weaving, but the spirit of invention and enterprise which distinguish our country and the age, has originated other spheres for the exertion of skill and the display of industry in the domestic circle; and even in regard to products now more cheapened by improvements in machinery and by "division of labor;" in connection with the application of water and steam power; wherever domestic industry finds no more objects to test its skill and energy, it may yet continue to move in its wonted paths, under the full conviction that every exercise of skill, and all the habits of industrious employment in themselves sources of numerous benefits, both direct and collateral, and that the products of skill thus exerted, will be duly noticed and appreciated.

The manufacture of palm-leaf hats and straw bonnets, (even though steam in its wide-spread application has reached to them,) yet deserves the attention of housewives and their families; in other methods

which their own ingenuity and good sense will from time to time suggest, they can show their fondness for domestic industry. But silk culture, in particular, opens before them an extended field for the profitable exercise of their skill and talent. The Committee were gratified to have evidence that in Rensselaer county this department of domestic labor is receiving attention, and it gives them pleasure to speak in commendation of the specimens of silk in this branch of industry which came under notice.

They would fain hope the time is not very far distant when this subject will receive general attention—when we shall have orchards of mulberry trees as we now have apple trees, and when our ladies will be dressed in silks of their own manufacture. It can scarcely be questioned that our soil and climate are both propitious for the growth of the mulberry; we certainly have skill and industry equal to the enterpise of cultivating the tree, growing the worm, and manufacturing the silk. And it is hoped these will soon be regarded as necessary appendages of a well regulated farm. On this subject, the ladies will give us the liberty of addressing to them a few words of special counsel. It is in our power to become a great silk growing community, and that such a consummation is exceedingly desirable cannot reasonably be doubted. But for securing this result we must call to our aid *female influence*, the lever that has been wielded with such potency for the accomplishment of benevolent and useful enterprises. To us it seems a duty and privilege of every mother in the nation, to endeavor to call forth and guide the ingenuity of her daughters—giving it such a direction that it shall elevate our national character, and by diminishing our dependance on foreign nations form the independence of our own. Are the females of our country inferior in point of taste and invention, to those of France? They certainly are not, though they have as certainly seemed to vie with each other in their servile dependance on French fashions and finery—to the positive injury of the nation in the consequent extravagant importations of French silks and fancy articles for their use. But would it not be far more independent, noble, and in every respect more becoming, for our fair countrywomen to employ their leisure hours in preparing dresses from materials of domestic growth and manufacture, after patterns harmonizing with their own refined tastes, and better suited to our climate than those of the French?

Let the ladies, then, adopt the position that growing and reeling of silk must become a prominent object of household industry. Let them employ their influence with their husbands and brothers to procure and set out the mulberry before the next county fair, and themselves, as soon as possible, begin the work of growing the silk. No work could be more appropriate for them than this—as it is periodical, and allows of long intervals of rest—and the reeling is an employ ment at once easy, social, and accordant with feminine fingers and habits. If information be needed as to the required process, procure "Dennis' Silk Manual" and it will be obtained.

Labor bestowed on the silk culture certainly will not be in vain, for no department of agricultural labor yields more ample remuneration

than this. And now will not the ladies take this department of useful effort and ingenuity under their own special patronage and supervision? Could your committee obtain from them a pledge of their general and hearty co-operation, theirs would be the pleasing confidence that the business of silk growing would at once receive an impulse that must secure its extended and successful prosecution, and the ladies would weave for themselves fresh chaplets of honor by thus contributing to place our beloved country upon a loftier eminence of national independence and glory.

All which is respectfully submitted.

ALEXANDER WALSH,
AMOS BRIGGS,
ALBERT R. FOX,
Committee.

SARATOGA COUNTY AGRICULTURAL SOCIETY.

PURSUANT to the act of the Legislature of this State, entitled "An act to promote agriculture," passed May 5th, 1841, I, the subscriber, president of the Saratoga County Agricultural Society, herewith transmit all the reports or returns, which the Society was required to demand and receive from applicants for premiums, together with an abstract of our proceedings during the past year.

The Society was organized under the act, on the 24th of June, 1841, by the adoption of a constitution and the appointment of a president, two vice-presidents, a treasurer, a corresponding secretary, a recording secretary and an executive committee of two from each town in the county, which said officers have the control of all the affairs of the Society. They are annually elected on the 1st Tuesday in October. The initiation fee is fifty cents, and the like sum to be paid annually.

The whole number of members, admitted 1st year, ending Dec. 31st, 1841, was 226, and the amount received by the treasurer for initiation fees and voluntary contributions was $123. The full amount apportioned to this county by said act, and drawn from the State Treasury, amounting to $121, was received by the Society.

Owing to the late period at which the Society was organized and the difficulty of complying with the act in relation to the raising of crops for that year, no premiums were awarded the first year of its organization.

Oct. 5th, 1841.—This was the day fixed by the constitution for the annual fair and the awarding of premiums, as well as the election of officers. The fair and cattle show were postponed until another year. The election of officers took place and resulted in the choice of Howell Gardner, for president; Calvin Wheeler, for 1st vice-president; Jacob Denton, 2d vice-president; Hiram E. Howard, treasurer; Archibald Smith, corresponding secretary; John A. Corey, recording secretary; with an executive committee of two in

each town. At this meeting the Society was addressed by the Hon. Samuel Young, in an able and appropriate manner, a copy of which address was on request furnished to the Society and published in the county papers.

This is an abstract of the proceedings of the Society for the past year, and is now furnished because this duty was neglected the previous year inasmuch as an essential part of the proceedings, (the awarding of premiums) was then omitted.

April 12, 1842.—The first regular meeting of the executive committees for this year, was held April 12th, 1842, when it was resolved to hold a fair and cattle show, at Ballston Spa, on the first Tuesday in October, then next following. The list of premiums was also agreed upon and adopted, and appropriate committees were then appointed.

Oct. 4, 1842.—Annual meeting and fair. As this was the annual meeting and election of officers, and the only day on which, by the constitution, the same could be altered or amended, several alterations were made and the election of officers was held, with the following result:

Elisha Curtis, president; Seth Whalen, 1st vice-president; Timothy Tripp, 2d vice-president; Reuben Westcot, treasurer; John A. Corey, recording secretary; Alonzo J. Chadsey, corresponding secretary; and an executive committee of two from each town.

The 20 volumes entitled "Transactions of the State Agricultural Society," were received by this Society, and distributed for the use of the members, by delivering one to some member of the executive committee in each of said towns in the county.

The annual address was then delivered by the president, Howel Gardner. The residue of the day was spent in examining the animals and articles offered for premiums, and in receiving and reading the reports of the several committees.

The president announced Monday the 10th of October, 1842, as the day on which the officers would assemble to examine the reports, and award the premiums.

Oct. 10, 1842.—The committee met, and after examining the reports of the different committees, resolved to award premiums in money, amounting to $187.

The sum of $121 apportioned to our county for 1842, from the the State Treasury, was withheld by the Comptroller, alleging as a reason, that we had held no fair the previous year, and had not reported the payment of any premiums.

The whole number of persons who have renewed their membership and become new members of the Society for the present year is 152; and the amount received by the treasurer by way of initiation fees, annual dues and contributions is $82.50. The balance remaining of last year after paying off the premiums and incidental expenses audited and authorized by the committee, is $17.49, which added to this year's contributions, makes $99.99 now in the hands of the treasurer of the Society. Premiums to the amount of $20.70 were awarded

by the Society at its late fair, which have not been called for, and consequently the statements from the successful applicants have not been received.

All of which is respectfully submitted.

HOWEL GARDNER,
President of the Saratoga Co. Ag. Society.

Dec. 28, 1842.

PREMIUMS ON FIELD CROPS.

Wheat.—1st premium of $8, to George B. Powell of Milton, for raising 58 bushels and 2 quarts of wheat on 2 acres, after a crop of barley, at an expense of $20.

2d premium, $4, to J. Cramer, 2d, of Waterford, for 55⅞ bushels of good wheat on 2 acres, after a white clover sod, at an expense of about $26.

Corn.—1st premium of $8, to William Wilcox, of Saratoga, for raising 274 bushels of Indian corn on 2 acres, at an expense of $24 37½.

2d premium of $4, to J. and W. Doty of Northumberland, for raising 206 bushels of Indian corn on 2 acres, at an expense of $22.53.

3d premium, diploma, to William Wilcox of Saratoga, for raising 190 bushels of Indian corn on 2 acres, at an expense of $24.37½.

Potatoes.—1st premium of $4, to Benj. K. Bryan, of Stillwater, for raising 183¼ bushels of Mercer, Pink-eye and Oxnoble potatoes on half an acre. Expense not stated.

2d premium of $2, to William C. Caldwell of Saratoga, for raising 300 bushels of Merino potatoes on half an acre. Expense not stated.

Mr. Wilcox's crop of Indian Corn.—The soil is a warm sandy loam. It was plowed last autumn. It had lain in grass six years. In the spring it was rolled down smooth, and harrowed twice thoroughly, being careful not to disturb the sod; about the first of May planted the same, two and a half feet one way and three the other, in the first place putting a small shovel full of fermented barnyard manure to each hill of corn, say some ten cart loads to the acre. About the first of June commenced hoeing, and also thinned it out, so as to leave four or five of the best plants in each hill; the whole averaging about four spears. The first of July hoed it again; put but a small portion of earth about the corn, but carefully cleaned out all the weeds from the hills. About the fifteenth of September, topped the corn below the joint. The seed was simply planted dry.

SUFFOLK COUNTY AGRICULTURAL SOCIETY.

The following are selected from the statements furnished by Wm. W. Mills, Esq. president of the Suffolk County Agricultural Society.

INDIAN CORN.—L. BRUSH'S STATEMENT.

This is to certify that one acre of Indian corn was planted about the 25th of April; planted on strong soil; put 20 loads of barn yard manure to the acre, and plowed it in; put about four loads of stable manure in the hills; it was planted 4½ feet apart each way, and plowed out six times and hoed once, and I gathered 160 bushels of ears.

My 3 acres of Indian corn were planted on a stiff sod about the first of May, manured in the hill about the same as the other, and same width. I gathered 100 bushels of ears to the acre.

LEWIS BRUSH.

Huntington, Nov. 24th, 1842.

BUCKWHEAT.—G. S. PHILLIPS' STATEMENT.

Having received from the Suffolk County Agricultural Society a premium of three dollars for the best crop of buckwheat, not less than one-half acre, I certify that I plowed the ground in the latter part of May last, it being a fallow; that I plowed it again early in July, then spread upon it twelve bushels of ground or crushed horn piths, which cost forty cents per bushel; then harrowed the ground twice over; and on or about the fourteenth of July I sowed upon said ground (containing by measurment about one acre and an half) three pecks of buckwheat of the small grey kind, and again harrowed it twice over; that the buckwheat was cut about the first of October, and threshed on the 8th of the same month; and that the quantity produced therefrom was thirty-six bushels, large measure. The expense of labor and manure was about fourteen dollars. The soil was a sandy loam.

GEO. S. PHILLIPS.

Dated October 26th, 1842.

RYE.—A. ROE'S STATEMENT.

I do hereby certify, that the rye on which the Suffolk County Agricultural Society awarded me a premium of five dollars, is the fifth crop that I have raised on the same field, by sowing 4 quarts of clover seed in the fall with the rye, and 8 quarts in the spring to the acre, and plowing in the crop of clover in the fall in lieu of other manure for the succeeding crop of rye. Though the present is not so good as former crops, the past season is known to have been unfavorable. I can recommend the above system with confidence from my own experience.

AUSTIN ROE.

Dated 27th Oct. 1842.

Manner of preparing ground for Onions.

Carted on 15 loads of horse manure about 15th April; plowed the ground immediately; spread 2 barrels bone manure, 10 bushels ashes; sowed them immediately in drills 11 inches apart; hoed and weeded them six times during the season; gathered them about the first Sept.; and from 100 feet by 50 of ground, they yielded 120 bushels.

CHAS. CLAPP.

POTATOES.—MR. SMITH'S STATEMENT.

I do hereby certify that I raised from one acre three hundred and sixty-eight bushels of the black potatoe, and that the same were inspected by one of the measurers appointed by the Society of the county of Suffolk; and the course of tillage and preparation of the ground was as follows: a portion of the ground was plowed the year previous, and a portion was plowed from the sod some six weeks previous to planting. The same were planted 3 feet by 2 feet; manured with sheep yard manure in the hill; plowed and hoed twice.

JOEL L. G. SMITH.

Smithtown, January 8th, 1843.

TOMPKINS COUNTY AGRICULTURAL SOCIETY.

I hereby certify that the within statements of grain and root crops, and also of milch cows, together with the printed doings at the fair of the Tompkins County Agricultural and Horticultural Society, held in October last, are a true statement of the doings of the Society for the year 1842.

BENJAMIN WOOD, *President.*

Ithaca, Jan. 3, 1843.

The following premiums were awarded by the committee on milch cows, viz:

Best milch cow of any breed,			Rev. William Wisner,.....	$3 00
2d best	do	do	Geo. P. Frost,.....	2 00
3d best	do	do	John Selover 2d,.....	1 00
4th best	do	do	John Mitchel, diploma.	

The following premiums were awarded by the committee on grain and root crops, viz:

Best acre of corn, 107½ bushels, to Ezra Cornell, ...				$3 00
2d	do	75	do Jesse Heller,.....	2 00
Best crop of winter wheat, 26⅝ bushels per acre, John Selover 2d,.....				3 00

2d best crop of winter wheat, 19 bushels and 19 quarts, Aaron K. Owen,..... 2 00
2d best crop of barley, 46 bushels per acre, John Selover, 2*d*, 1 00
3d best crop of barley, 44 bushels per acre, Aaron K. Owen, diploma.
Best acre of millet, 31½ bushels seed, and 2¾ tons fodder, Geo. Jones,..... 2 00
2d best crop of potatoes, 203 bushels on half an acre, Wright B. Reynolds, ... 1 00
Best crop Rohan potatoes, 135½ bushels on a quarter of an acre, Wright B. Reynolds,..... 2 00
Best crop of sugar beets, 431 bushels on a quarter of an acre, Wright B. Reynolds,..... 2 00
2d best crop of sugar beets, 237 bushels on a quarter of an acre, Aaron K. Owen,..... 1 00

BENJAMIN WOOD,
L. A. MORRELL, } *Committee.*
GEO. P. FROST,

The following are true copies of statements presented to me by the several gentlemen whose signatures they bear. The original statements are on file in my office. GEO. P. FROST,
Recording Secretary of Tompkins Co. Ag. Society.
Ithaca, December 31, 1842.

MILLETT.—MR. JONES' STATEMENT.

Account of two acres of millet raised by George Jones, on his land; the land was in wood in April, it was chopped, logged and sown with twenty quarts of seed to the acre, on the eighth day of June; and on the fifth day of September it was cut, and it was finished threshing on the twenty-eighth day of December, and was found to be five and half tons of fodder, and sixty-three bushels of seed.

Sowed on the land without plowing, as it was burnt; dragged it in and hoed round the stumps; cut with a scythe. Expenses as follows:

Seed for the two acres, 40 quarts,.....		$1 25
Sowing 2 acres, 3*s*., and dragging do. 2 acres, 12*s*. Hoeing round stumps, 8*s*.,.....		2 88
Mowing and harvesting, 20*s*. Threshing 63 bushels, $3.15,		5 65
		$9 78
5½ tons fodder worth $6.00 per ton,.....	$33 00	
63 bushels seed worth 6*s*.,.....	47 25	
		$80 25
Clear profit,.....		$70 47

Newfield, Dec. 28, 1842. G. JONES.

INDIAN CORN.—MR. CORNELL'S STATEMENT.

The following is a statement of one acre of Dutton corn which I cultivated the past summer, and which I offer in competition for the premium offered by the Agricultural Society for the best acre of corn. This corn was grown on the same acre of ground from which I obtained 99 $\frac{3}{16}$ bushels of the China tree corn in the summer of 1841; 100 bushels of Dutton corn, and five tons of well cured fodder in the summer of 1840, and 80 bushels of Dutton corn in the summer of 1839. The ground was prepared by hauling on about 25 cords of unfermented manure from the horse stable, which was spread broadcast, and plowed under as deep as possible, probably about 10 inches,(the ground had not been plowed since taking the last crop from it;) it was then harrowed to render the surface smooth and uniform; I then marked it carefully both ways with the teeth of the marker set 2 feet 8 inches apart. The corn was planted the 15th of May at the intersections of the marks from 10 to 12 kernels in a hill; the seed was prepared by soaking 24 hours in a solution of copperas water, and rolled in plaster when planted. When the corn was about 3 inches high, it was dressed with plaster and ashes scattered in small quantities about each hill; at the second hoeing it was thinned down to 4 spears in a hill. The corn was worked out with the cultivator twice; the first time about the 20th of June, the second time the 12th July, and followed each time with the hoe. The corn was cut up at the ground, and stouted up in the field about the middle of September; in October it was husked and weighed, when it was ascertained that there was 7,716 lbs. of ears; the corn was then spread on the upper barn (loose) floor, where it dried, and about the middle of December I weighed out 100 lbs. ears taken promiscuously, and shelled it, and got 78 lbs. shelled corn, making 6,018$\frac{1}{2}$ lbs. of shelled corn, or 107 $\frac{3}{16}$ bushels to the acre. The above result shows 5 lbs. of ears more than I got from my best acre (Dutton) last year, and 6 $\frac{7}{16}$ bushels less shelled corn, which I attribute to the corn being more thoroughly dried this year than it was last, before being shelled and weighed; as the corn appeared equally sound and well filled in the ear both years. The expense of cultivation was no more than is ordinarily incurred in a corn crop, except the hauling the extra amount of manure. It required two men and team two days to haul the manure.

Yours, &c.

E. CORNELL.

WHEAT AND BARLEY.

I, the subscriber, respectfully report that I have raised at one crop 240$\frac{1}{2}$ bushels of wheat on nine acres of land; that said land, previous to the year of cultivation, was a clover sward; that no manure was applied till the year of cultivation, and then but half of it lightly with straw and fine manure; that said ground was twice plowed, and four times harrowed during the year of cultivation; that the wheat sowed on said land is what is called the red bald wheat; that

the number of bushels sown was eighteen; that the expense of gathering said wheat was nine dollars and fifty cents, and that the expense of threshing and cleaning the same was sixteen dollars; yield, about 26⅔ bushels per acre.

I also report, that I have raised on two acres and twenty-two rods of land, 97½ bushels of barley; that previous to the year of cultivation, potatoes had been raised on said ground; that the ground was manured the year that it was cultivated with potatoes; that the year of cultivating said barley, no manure was applied; that said ground was plowed once and harrowed twice; that said barley is what is called the two rowed barley; that four and a half bushels were sown to obtain the present crop, and that the expenses of gathering and threshing said crop were five dollars.

JOHN SELOVER, 2d.

STATEMENTS OF MILCH COWS.

Mr. Wisner's cow run in pasture very near the door; feed generally good; water and shade in lot; was fed a large pail of bran twice a day; milked three times a day; quantity twenty-five quarts per day in May and June, and from that down to sixteen quarts during the rest of the season. In May made forty-seven pounds butter, and supplied *two families of eight persons in the two*, with new milk. One day in June, from all the milk, made one pound and thirteen ounces of butter. Dark red cow, fine form; cow laid in pasture during day and night.

Ithaca, October 6, 1842.

Mr. Frost's cow. A dark red cow, five years old last spring; said to be common breed crossed with Durham; calved 3d of April last; calf vealed. Made in the month of May, thirty-nine pounds butter, *and supplied a family of twelve* with new milk for all purposes, including custards, pies, and table use in various ways; the last ten days sold one pint per day; and several times during the month gave a pitcher full to friends. One day in June saved all the milk of just twenty-four hours, and made one pound and thirteen ounces first quality butter. One day in July, one pound and seven ounces. In August one day, one pound and nine ounces. Largest quantity of milk per day, eighteen quarts; averaged about seventeen quarts, in May and June; July, August, and September, from fourteen to ten quarts; was kept in the stable from November to May, and never turned out; had all the good hay she would eat; the slops from the house and a little bran each day, with fresh water. In May turned her away to pasture nearly a mile, where she fed during the summer; drove away in the morning and back at night, and laid in yard over night; at night had the slops of the house, and in the morning, before driving, a corn basket of fresh grass. Clean running water in pasture; clover and herds grass, part of the time very good, and part of the time very short. Cow, fine form and medium size.

Ithaca, October 6, 1842.

Mr. Selover's cow. The statement mislaid by committee; verbal statement from him: twenty-nine quarts milk best day, weighing fifty-three pounds; and made one week, a few ounces over fourteen pounds. No other test during the season; feed not recollected; appearance of cow rather rough.

Ithaca, October 6, 1842.

MR. REYNOLDS' STATEMENT.

To the Secretary of the Agricultural Society of Tompkins County.

Sir—I have raised this year, on one quarter of an acre of ground, four hundred and thirty-one bushels of sugar beets—the previous crop potatoes; had ten good wagon loads of stable manure; plowed the last of April, and previous to plowing, five more good loads of stable manure put upon the ground; ridged about eighteen inches apart, and planted in drills on the top of the ridges; the seed dropped about two inches apart; quantity, about fourteen ounces. Plowing, one quarter of a day; planting, one and a half days; first hoeing, two days; second do., one day; third do., one day; harvesting, four days. Planted the 1st of May; the soil clay.

Also, one quarter of an acre of Rohan potatoes—the previous crop, manure and plowing the same as the beets. Planted the 6th of May, in rows about two and a half feet apart, and one foot in the rows; the quantity of seed one and one-quarter bushels, cut in pieces, one and two eyes in a hill; planting and preparing seed, half a day; once with horse and cultivator, one hour; do., do., with plow, one hour; one hoeing, half a day; harvesting, two and a half days. The quantity was 135½ bushels.

Also, one-half an acre of round pink eye potatoes—the previous crop, culture and manure the same as the Rohan, excepting they were planted about eighteen inches apart in the rows. The quantity of seed was five and one-quarter bushels; one potatoe put in a hill. It took twice as much labor to raise them as the Rohans, and six days labor to harvest them. The quantity was two hundred and three bushels; the soil clay.

WRIGHT B. REYNOLDS.

Ulysses, December 21, 1842.

I certify that in the month of November, 1842, I husked for Jesse Heller, two hundred and thirty baskets of corn, grown on a piece of ground purporting to be one acre, which yielded seventy-five bushels and five quarts by measure.

ANDREW CASE.

I certify that I assisted in measuring the above piece of ground, and there was one acre only.

STEPHEN HULBERT.

I certify that the ground on which the above crop of corn was grown, had the previous year produced a crop of wheat; the soil a sandy loam; applied to the crop of corn thirty loads of coarse barn-yard manure; plowed once, previous to planting; crop hoed three times; ground stirred before first hoeing by a cultivator, and the second and third hoeing by a common plow; whole number of days' work unknown. JESSE HELLER.

Lansing, December 2, 1842.

STATEMENTS OF MR. AARON K. OWEN.

Nineteen acres of wheat of the Hutchinson kind, sixteen of which were clover sod fallowed; the other three after barley, which was manured previous to sowing barley, at the rate of thirty-five loads per acre, mostly of a coarse, unreduced quality; plowed twice after the barley was taken off, and harrowed twice. The fallow ground was plowed three times; harrowed but little previous to sowing; no manure; the quantity of seed sown was about two bushels per acre; after which it was harrowed twice. Both pieces included, yielded on an average nineteen bushels and nineteen quarts per acre, the quality above the medium for the past season, yet not as good as is generally raised on my farm.

Two acres of barley; the crop preceding consisted of peas, oats, and potatoes, previous to which the ground was manured at the rate of thirty-five loads per acre, mostly coarse manure from wheat straw. In preparing the ground for the barley crop, it was part plowed in the fall, when the ground was frozen up, and left till spring, when it was finished, and then crossed, and the barley sowed and harrowed once; the seed was a mixture of the double and single rowed. The product was forty-four bushels per acre. Threshing with a machine, was well cleaned, and of a superior quality. The quantity of seed sown did not exceed two bushels per acre.

Three quarters of an acre of sugar beets, yielding six hundred and seventy-six bushels; the best quarter produced two hundred and thirty-seven bushels. Measured in a *broad bushel* and a half basket, (well put on.) The ground received an ordinary dressing of manure, say thirty-five loads per acre; plowed in the fall, and again in the spring; plowed and ridged up; planted in drills on the ridges, *three feet apart*; went through twice with a horse and cultivator, and hoed twice. AARON K. OWEN.

WASHINGTON COUNTY AGRICULTURAL SOCIETY.

GENTLEMEN—A meeting of the executive committee of the Washington County Agricultural Society, was held in the village of Argyle, on the 29th day of June, at which a list of premiums was agreed upon, viewing committees were appointed, and other arrange-

ments made for the fair of the Society. On 50 different articles, 92 cash premiums were offered, of $1 to $8 each, the total amount thus offered being upwards of $300.

The fair of the Society was held in the village of Salem, Oct. 11th, and was honored by an attendance on the part of our citizens unexpectedly numerous. On no occasion since the last capital punishment was inflicted in this county, (A. D. 1808,) it is said by the older inhabitants of the vicinity, has so large a concourse of people been assembled in the village of Salem, and many have expressed their surprise, that an association with so limited an amount of funds, should be able to attract such a mass of our population as convened upon that day, and have all so highly gratified with its exhibition and proceedings.

The viewing committees were convened and addressed upon the duties which the society had assigned to them. Those parts of the "Act for the encouragement of Agriculture," which prescribe the principle on which premiums are to be awarded, to wit: that *the most economical or profitable article is the most meritorious*, was particularly held up to their attention. The committee then proceeded to make their examinations and awards; and their decisions with scarcely an exception, were received with universal approbation. Their reports, together with the certificates of the successful applicants for premiums, have been already transmitted, and will be found much more full and definite than those of last year.

The committee on field crops, awarded premiums as follows:

Martin Rogers, Greenwich, for the best Winter Wheat, $6.00; 29 bushels, on newly cleared sandy loam, a hill side facing the south and sheltered by woods on the north and west; bearded white chaff of superior quality, all sold for $1.45 per bushel. Nett profit of the acre (i. e. after deducting all the expenses of cultivation,) $31.04.

Nathan W. Wilson, Salem, best Spring Wheat, $5.00; 22 bushels 28 quarts; on elevated moist loam, in good condition, sheltered on the north. In corn 2 years; sheep manure, 2 bushels plaster, and 14 bushels ashes applied last year. Seed (tea wheat) soaked in brine and rolled in lime. Nett profit, (at 9s. per bushel,) $17.46.

Asa Fitch, Jr. Salem, 2d best Spring Wheat, $3.00; 25 bushels 7 quarts; on loamy gravel, an open plain. Pasture broke up and in corn last year, no manure. Seed (bald red chaff,) washed in brine, and for half the piece rolled in unleached ashes, but with no perceptible benefit. Cradled Aug. 2d.; out in the disastrous rains till the 11th, its quantity and quality thereby much impaired. Nett profit, (at 8s. 6d. per bushel,) $17.81.

James Savage, Argyle, best corn, $6.00, 80½ bushels; on a level meadow of sandy loam, broke up in the fall, harrowed in the spring, cross furrowed 3½ feet apart. Seed, (common 3 rowed yellow,) planted dry, hoed twice. Total of labor 12 days.

Henry Holmes, Greenwich, 2d best Corn, $4.00; 67½ bushels. On meadow land, broke up in the fall; harrowed in the spring; planted May 10th; twice hoed; cut up Sept. 25; husked Oct. 7, 8. No manure. Nett profit $30.00.

Fairness requires us to notice the crop offered by *Constant Clapp*, Jackson. From an acre he raised 85 bushels of China Tree Corn; on gravelly loam, greensward broken up last spring; no manure since 1839, when 40 loads were applied; hills accidentally 4 feet apart. Nett profit, (at 4s. per bushel,) $38.75. Over 100 hills were destroyed by worms; and had the rows been 3 feet by 4, as was intended and thus yielded equally well, the single acre would have produced one hundred and nine bushels. But in this county, 85 bushels, like a certain quality of wine, "needs no bush."

Henry R. McLean, Jackson, best Potatoes, $5.00; 510¼ bushels; on a low dry meadow of loamy gravel, broken up in April, 5 inches deep; harrowed; seed, (Merino,) 20 bushels, sliced; plaster in the hill and after weeding; weeded middle of June, with cultivator and hoe; early in July cross-plowed and hilled; harvested Oct. 8, 10th. Nett profit $73.24.

Peter Hill, Jackson, best Rye, $4.00; 25 bushels 11 quarts; on moist loamy gravel; after a spring crop which had 1 bushel of plaster, it was plowed and sowed Sept. 8, harvested July 20th. Nett profit $9.57.

Henry Holmes, Greenwich, best Oats, $4.00; 53¼ bushels per acre, the average of 8¼ acres. On sandy loam, in corn last year; straw estimated to pay expense of cultivation, making the nett profit at 2s. 6d. per bushel, (the oats being of superior quality,) $16.62½. [Certificate not sufficiently definite.]

William A. Russell, Salem, 2d best Oats, $3.00; 97 bushels 4 quarts; on moist clay loam, in potatoes 5 years past, and 15 loads manure each year, none the present; plowed and harrowed in April; 2¼ bushels seed. Nett profit at 2s. per bushel, $12.34, or estimating straw to pay expense of cultivation, $24.28.

John McDonald, Salem, 3d best Oats, a volume of State Agricultural Society Transactions; 80 bushels 6 quarts; on light sandy loam; 25 loads unfermented manure turned under early in June, last year, and potatoes planted. Plowed May 3d; 3 bushels seed; harrowed; half the acre pressed by the roller, was much the thriftiest at first, but no difference perceptible at harvest. Nett profit at 2s. per bushel, $11.64, or estimating straw to pay expense of cultivation, $20.05.

The committee say: "All the specimens presented were of superior quality, and although there were no competitors for the premiums on winter wheat, rye and potatoes, the committee have awarded premiums for these productions as above, believing them meritorious. Accompanying the report is a detailed statement of an experiment by Mr. Holmes, of sowing corn broadcast, which the committee would recommend should be published."

Some dissatisfaction having been expressed, with reference to the awards on corn and oats, the chairman of the committee, in reply to a communication inquiring the reasons of the decisions on those crops, states that the *quality of the respective samples* of grain was a prominent consideration with the committee. Esq. Clapp's corn was shrivelled, and in the opinion of the committee, not at all adapt-

ed to our climate and soil. Had he received the premium, it would, as it were, have stamped the China corn with the approbation of the Society; it would have been tantamount to a recommendation of this variety of corn to the farmers of our county; many of them would thereby have been induced to cultivate it, to their great injury; as from repeated experiments, it is deemed to be quite unsuited to our short summers, however admirably it may succeed in some particular situations, with a favorable season. With regard to oats, "I am not so positive that we were correct. We had not time carefully to compare the respective certificates, and supposed the nett profit as summed up on each paper was substantially correct. The principle that governed me, and I believe my colleagues, was the decidedly superior sample offered by Mr. Holmes. Believing them the most profitable kind that can be cultivated in this section of country, we, to bring them prominently to the notice of our fellow farmers, awarded him the first premium. Mr. McDonald's sample was fair, but Mr. Russell's, though a great yield per acre, certainly were of a quality so inferior that they could not be recommended for cultivation. Perhaps, considering the so much greater production per acre, our decision may have been wrong; but those who examined the respective samples, will scarcely disagree with us."

Neither quantity, nor quality, *per se*, should have governed the committee. The premium was for *the best*—which we utilitarian farmers all know, means the *most profitable*—acre of oats, corn, &c. Which acre would bring the *most money into the farmer's pocket*—that is the question. If Mr. Russell, or Mr. McDonald, can probably in market sell the yield of his acre for more cash than Mr. Holmes, (after deducting the fair expense of cultivation in each case) then was he entitled to the first premium. This is the true ground—nor would Mr. H., or any other intelligent friend of the Society, ask for a premium on any other. And whether, placed solely upon this ground, the awards in the above cases would have been varied, we do not presume to say.

MR. HOLMES' ACCOUNT OF HIS CROP OF CORN SOWN BROADCAST.

On the 5th day of May last, I sowed broadcast, and harrowed in, twelve quarts of corn on half an acre and eleven rods of ground, without any manuring; and it was not touched again until the 22d of September, when I cut it and set it up on the ground, in the same way that I did the corn which I planted in hills; and on October 5, husked from it 46 bushels of ears, (i. e. nearly 91 per acre.) I have got a much larger amount of fodder than from any piece of the same size which I have planted, and I have no hesitation in saying, even in this time of low prices, that the stalks will more than pay for all the labor of raising it. The soil was gravel, and was planted with corn last year. HENRY HOLMES.

The nett profit of the above, must have exceeded the rate of $23.-00 per acre, and helps to demonstrate the uselessness of hilling corn.

Would it not be economy for all those farmers whose pastures are quite short at mid-summer, to sow a piece as above, to be cut up and fed green to their milch cows when yarded at evening.

The officers of the society for the coming year, elected on the day of the fair, are as follows: President, Edward Long, Cambridge; Vice-Presidents, John Crary, Salem; Henry Holmes, Greenwich; David Sill, Argyle; James Farr, Fort-Ann. Corresponding Secretary, John Savage, Salem. Recording Secretary, Asa Fitch, Jr. Salem. Treasurer, James Savage, Argyle.

One hundred and forty-three persons connected themselves with the Society during the past year, and the amount of the State appropriation, together with a balance on hand from the previous year, have made the amount of funds in the Society's treasury $322.00. Of this sum $224.00 have been expended in premiums, and $30.67 for printing handbills, advertising, and other incidental expenses, leaving a balance of $67.33 on hand, a portion of which is due for premiums awarded but not yet called for.

By order of the President.

ASA FITCH, Jr., *Rec. Sec.*
Washington County Agricultural Society.

WAYNE COUNTY AGRICULTURAL SOCIETY.

MOST of the proceedings of Wayne County Agricultural Society, in 1842, were in relation to the annual Fair, which was held at Palmyra, on the 5th and 6th days of 10 mo. (Oct.) The amount previously offered for premiums by the executive committee, was as follows:—For farms, $39.00; for horses, $24.00; for cattle, $67.00; for sheep, $20.00; for swine, $12.00; for field crops, $63.00; for domestic arts, $53.00; for horticultural productions, $3.50; for agricultural implements, $23.00; for plowing, $28.00; total, $337.50. Discretionary premiums were also directed to be awarded. The amount actually awarded at the fair was, for farms, $39.00; seed wheat, $8.00; horses, $29.00; cattle, $74.00; sheep, $20.00; swine, $11.00; butter, cheese and honey, $13.00; wool cloth, &c., $12.00; silk and cocoons, $5.00; fruits, $4.50; agricultural implements, $12.00; plowing, $14.00; miscellaneous articles, $24.50. At a subsequent meeting of the Society, on the 15th of 11th month, $23.00 were awarded as premiums on field crops. Total, $289.00.

Most of the reports of the committees were unaccompanied with statements of the practical management pursued, and in many instances the breeds of animals which drew premiums were not even named.

The first premium for cows, was given for a specimen of native breed, which, according to the statement of the owner, has yielded fourteen pounds of butter per week, besides the cream used by the family. She had good pasture only.

The committee on field crops awarded as follows:

To C. S. Button, for the best crop of corn, 2 acres 76 rods, at the rate of 99 bushels 6 quarts per acre.

The seed of this crop was the *Dutton*—the previous crop peas and oats—the land was plowed twice in May, and manured with 12 loads at each plowing—harrowed, and planted about the 12th of May in hills 2 ft. by 2 ft. 8 inches—12 to 16 seeds were placed in each hill, and afterwards thinned to 3 or 4—the after culture consisted in cutting the weeds twice, with cultivator and hoe.

To C. S. Button, for the best crop of wheat, 5 acres 11 rods, 151½ bushels, or about 30 bushels per acre.

The variety was the *White Flint*—the previous crop was corn, manured, 20 loads to the acre. The ground was prepared by splitting the hills, dragging down, and plowing once; 8½ bushels of seed were sowed the first week in October, and harrowed once each way.

To Marvin Roundy, for the best crop of oats, 4¾ acres, 312 bushels, or 67 bushels per acre. The previous crop was corn, unmanured, and the amount of seed sown, 10 bushels.

To D. & G. W. Kenyon, for the best crop of potatoes—72 rods, 167½ bushels, or 376 bushels per acre.

The seed was a mixtrue, mostly a red variety. Each potatoe was cut in three pieces, planted in drills 3½ ft. apart, one foot in the drill. The preparation of the ground consisted in covering it with manure and plowing it once.

To Rocher and Miller, for the best crop of the Ruta Baga—half an acre, 549 bushels, or 1,098 bushels per acre. The ground was a *clover-sod*, mowed the previous year, plowed the first of May, and well harrowed; sheep manure was applied at the rate of 24 loads to the acre. The land was plowed and dragged on the first of June, and planted on the 8th, in drills, 20 inches apart; the plants thinned to 8 to 16 inches in the drill. The crop was hoed twice and harvested the 5th of November.

Wayne County Agricultural Society has as yet enlisted but a part of the intelligent farmers, but its numbers and influence are yearly increasing. A large portion of the county is comparatively a new country, and it contains few wealthy landed proprietors, in comparison with many parts of Western New-York. It possesses, however, eminent advantages in a soil mostly of great fertility, not so heavy as to bake in drouth, nor so light as to lack strength. In addition, it has scattered over its surface, numerous beds of peat, and vast quantities of shell-marl, which are yet destined to furnish immense supplies for manure. The softening influence of Lake Ontario, which forms its northern boundary, also gives it eminent advantages for the culture of the more tender fruits. Its resources, however, are but very partially developed, and are scarcely comprehended by many of the people. It is hoped the Agricultural Society will exert a highly beneficial influence in this direction.

J. J. THOMAS, *Cor. Secretary.*

NEW-YORK STATE AGRICULTURAL SOCIETY.

TREASURER'S REPORT.

Ezra P. Prentice, Treasurer, in account with the New-York State Agricultural Society.

1842.	Dr.	1842	Dr.
To balance in Treasury at date of last report,	$969 36	Paid H. S. Randall, Cor. Sec'y, expenses,	$40 80
To cash of James Lennox, New Hamburgh,	100 00	" Croswell & Van Dyck, advertising,	14 50
" James S. Wadsworth, Geneseo,	100 00	" Young Men's Association, use of room,	4 00
" T. Kirkpatrick, avails of quarter prize Ox, presented to the Society by P. N. Rust, Syracuse,	64 67	" Daily Advertiser, advertising,	6 12
		" D. W. Weeks, premium on oats,	15 00
		" Wm. Ingell, premium on corn,	20 00
" John Townsend, Albany,	50 00	" John S. Jones, premium on oats,	8 00
" James Wadsworth, Geneseo,	50 00	" J. F. Osborn, premium on corn,	10 00
" Thomas Hillhouse, Watervliet,	25 00	" R. H. Pease, drawing and engraving,	19 00
" J. McDonald McIntyre, Albany,	25 00	" Evening Journal, advertising,	14 09
" Martin Van Buren, Kinderhook,	20 00	" C. Van Benthuysen, binding 500 copies "Transactions,"	125 00
" Erastus Corning, Albany,	15 00	" C. Van Benthuysen, printing Mr. Nott's Address,	23 97
" Allen Ayrault, Geneseo, for self and others,	15 00	" " printing circulars, &c.	1 75
		" H. S. Randall, Cor. Sec'y, expenses,	30 00
" W. E. Bleecker, Albany,	10 00	" G. Donaldson, premium on swine,	5 00
" V. P. Douw, Albany,	10 00	" B. Gibson, premium on swine,	8 00
" J. Edwards, Albany,	10 00	" John A. Pitts, premium on threshing machine,	20 00
" Gideon Hawley, Albany,	10 00	" John Lossing, premium on swine,	8 00
" Friend Humphrey, Albany,	10 00		

TREASURER'S REPORT—CONTINUED.

1842		Dr.	1842.		Cr.
To cash of	Rufus H. King, Albany, ...	$10 00	Paid H. D. Grove, premium on buck, ...		$8 00
"	J. & A. McClure, Albany, ...	10 00	" " premium on best and sec'd best ewes,		18 00
"	Pruyn, Wilson & Vosburgh, Alb'y	10 00	" E. Long & Son, premium on stallions, ...		32 00
"	Joel Rathbone, Albany, ...	10 00	" V. P. Douw, premium on vegetables, ...		2 00
"	J. L. Schoolcraft, Albany, ...	10 00	" S. Shaw, premium on swine, ...		5 00
"	James Stevenson, Albany, ...	10 00	" E. C. Delavan, premium on bull and buck, ...		13 00
"	L. G. Ten Eyck, Bethlehem, ...	10 00	" J. McDonald McIntyre, premium on bucks, ...		18 00
"	Teunis Van Vechten, Albany, ...	10 00	" " premium on ewes and fat sheep, ...		13 00
"	Charles Van Benthuysen, Albany,	10 00	" H. Adams, premium on oxen, ...		5 00
"	Bradford R. Wood, Albany, ...	10 00	" Jesse Buel, premium on cow, ...		10 00
"	W. A Wharton, Albany, ...	10 00	" " premium on vegetables, ...		1 00
"	J. N. Wilder, Albany, ...	10 00	" J. J. Viele, premium on carpet, ...		5 00
"	Webb & Douglass, Albany, ...	10 00	" S. S. Fowler, premium on heifer, ...		10 00
"	P. Cagger, Albany, ...	5 00	" John Mott, premium on sheep, ...		5 00
"	Charles Downing, Newburgh, ...	5 00	" T. C. Abrahams, premium on swine, ...		10 00
"	Eagle Tavern, Albany, ...	5 00	" Thomas Dunn, premium on buck, ...		10 00
"	C. Foster, Albany, ...	5 00	" " premium on ewes, ...		5 00
"	Orville Hungerford, Watertown, .	5 00	" J. Downer, premium on horse rake, ...		5 00
"	G. Lathrop, Albany, ...	5 00	" J. H. Coons, premium on cultivator, ...		8 00
"	J. L. Rathbone, Albany, ...	5 00	" P. F. Mesick, premium on horses, ...		5 00
"	B. P. Staats, Albany, ...	5 00	" P. Wilson, premium on rug, ...		3 00
"	Wm. Thorburn, Albany, ...	5 00	" J. H. Hall, for diplomas, ...		100 00
"	Individual members, ...	530 96			

To cash of Comptroller of State, ...	$700	00	
" For "Transactions,"	4	00	
" Receipts of Fair, after payment of expenses, ...	345	74	
" For interest on funds since last report, ...	79	55	
Carried forward, ...	$3319	28	

Paid B. A. Hall, premium on butter, ...	$5	00
" N. C. Sweet, premium on bull calf, ...	5	00
" M. Battel, premium on steam generator, ...	5	00
" Loss on two bills, Bank of Lyons, ...	0	90
" I. F. Goodwin, premium on butter, ...	12	00
" George Vail, premium on bull, ...	8	00
" W. S. Jacks, premium on hay press, ...	5	00
" James Wilson, premium on vegetables, ...	3	00
" E. P. Prentice, premium on bulls, ...	40	00
" " premium on cows, ...	12	00
" " premium on heifers, ...	18	00
" " premium on calves, ...	25	00
" " premium as breeder of best bull,	10	00
" Evening Journal, advertising, ...	15	00
" Daily Advertiser, advertising, ...	13	86
" Subscription to National Ag. Society, ...	10	00
" L. Tucker, Rec. Sec'y, postage, ...	13	85
" Daily Atlas, advertising, ...	12	00
" Albany Argus, advertising, ...	15	00
" C. Van Benthuysen & Co., printing, ...	92	52
" L. Tucker, Rec. Sec'y, incidental expenses, ...	9	00
" A. Koonz, premium on coverlid, ...	5	00
" Wm. P. Buel, premium on fruits, &c.	6	00
" L. V. V. Schuyler, premium on heifers, ...	13	00
" A. B. Jones, premium on silk reel, ...	10	00
" Isaac Haswell, premium on cheese, ...	5	00
" S. S. Leonard, premium on vegetables, ...	1	00
" J. S. Pangburn, premium on vegetables, ...	1	00

TREASURER'S REPORT—CONTINUED.

1842.	Dr.	1842.	Cr.
Brought forward,.....	$3319 28	Paid I. T. Grant, premium on fanning mill, ...	$8 00
		" Benj. Aikin, premium on working oxen,.....	12 00
		" W. H. Sotham, premium on ruta baga,.....	1 00
		" L. D. Clift, premium on sheep, ...	8 00
		" Robert Johnson, premium on horses,.....	10 00
		" D. McKinney, premium on stallion,.....	8 00
		" E. Chesebro, premium on cow, &c.....	9 00
		" Marcus Adams, premium on harrow,.....	8 00
		" Prince & Vibber, premium on manufactured silk,.	10 00
		" George Clarke, premium on bull,.....	12 00
		" A. T. Van Slyke, premium on grapes, ...	2 00
		" C. W. Hull, premium on sheep,.....	10 00
		" Charles Godfrey, premium on fat cattle,.....	20 00
		" John Johnston, premium on bull,...	12 00
		" D. G. Stafford, premium on threshing machine,..	10 00
		" George Cooley, premium on butter,.....	20 00
		" B. Gauss, Jr., premium on maple sugar,.....	15 00
		" T. R. Hussey, premium on harvesting machine,..	10 00
		" Obed Hussey, premium on corn crusher,.....	8 00
		" B. F. Smith & Co. premium on horticultural implements,.....	10 00
		" Ezra Chesebro, premium on cheese,.....	20 00
		" P. W. Dickey, premium on fanning mill,.....	5 00

Carried forward,	$3319 28

Paid A. J. Downing, premium on pears,	$5 00
" E. Holbrook, premium on fruits and vegetables,	7 00
" A. Fitch, Jr. premium on linen diaper,	3 00
" A. J. Downing, premium on apples,	8 00
" G. W. Risley, premium on cow,	12 00
" Samuel Waite, premium on sheep,	10 00
" W. Phelps, premium on working oxen,	20 00
" John Standish, premium on straw cutter,	5 00
" H. Morrison, premium on butter,	8 00
" D. Palmer, premium on cocoons,	10 00
" " premium on reeled silk,	20 00
" " premium on manufactured silk,	5 00
" Wm. Salisbury, premium on boar,	10 00
" C. Proctor, premium on harrow,	5 00
" W. N. Sill, premium on working oxen,	8 00
" J. H. Cole, premium on onions,	3 00
" Louisa Steel, premium on cocoons,	15 00
" A. P. Heartt, premium on cocoons,	5 00
" " premium on reeled silk,	10 00
" " premium on fruits,	6 00
" J. B. Hudson, premium on vegetables,	1 00
" C. N. Bement, premium on bull,	8 00
" " premium on heifer,	10 00
" D. Payne, premium on vegetables,	2 00

TREASURER'S REPORT—CONTINUED.

1842.	Dr.	1842.	Dr.
		Paid Wm. Hovey, premium on straw cutter,.....	8 00
		" W. E. White, premium on maple sugar,.....	10 00
		Balance in Treasury, January 18, 1843,.....	1843 92
Brought forward, ...	$3319 18		$3319 28
To balance in Treasury, January 18, 1843,..	$1843 92		

There is supposed to be due from the Society, for premiums awarded but not yet called for, from $350 to $400.

Albany, Jan. 18, 1843. EZRA P. PRENTICE, *Treasurer.*

We certify that we have carefully examined and compared the above account with the accompanying vouchers, and that the same is in all respects just and true.

JAMES S. WADSWORTH, *President.*
LUTHER TUCKER, *Rec. Secretary.*

NEW-YORK STATE AGRICULTURAL SOCIETY.

LIFE MEMBERS—*By the payment of* $50, *or more.*

John P. Beekman, Kinderhook.
Erastus Corning, Albany.
James Lennox, New-Hamburgh.
Edward P. Livingston, Clermont.
Archibald McIntyre, Albany.
J. McDonald McIntyre, Albany.
Ezra P. Prentice, Albany.
Francis Rotch, Butternuts.
Philo N. Rust, Syracuse.
John M. Sherwood, Auburn.
John Townsend, Albany.
Stephen Van Rensselaer, Albany.
Wm. P. Van Rensselaer, Albany.
James Wadsworth, Geneseo.
James S. Wadsworth, Geneseo.
Wm. W. Wadsworth, Geneseo.